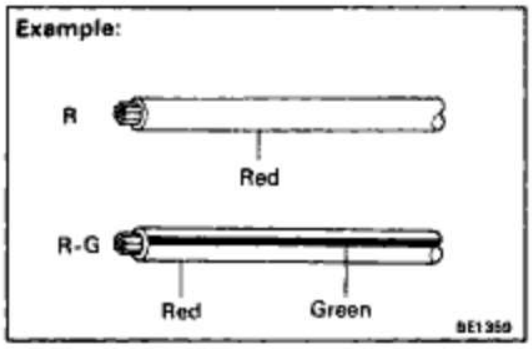
BODY ELECTRICAL SYSTEM



GENERAL INFORMATION

WIRING COLOR CODE

Wire colors are indicated by an alphabetical code.

B=Black	L=Blue	R=Red
BR=Brown	LG=Light Green	V =Violet
G=Green	O=Orange	W=White
GR=Gray	P=Pink	Y =Yellow

The first letter indicates the basic wire color and the second letter indicates the color of the stripe.

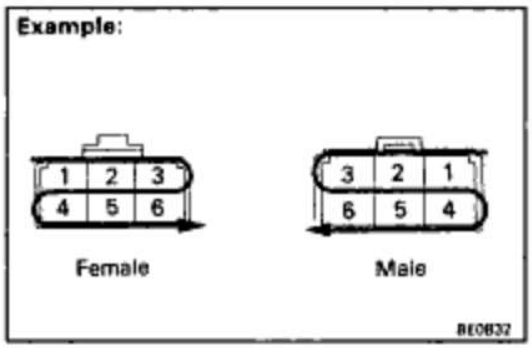
CONNECTOR

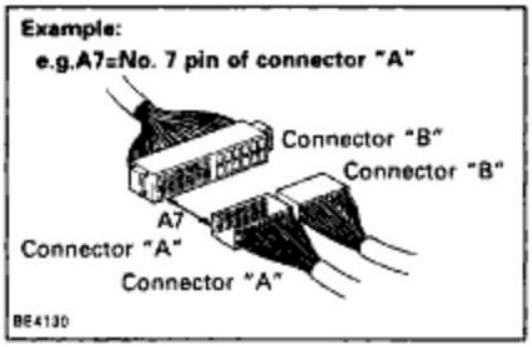
1. PIN NUMBER OF FEMALE CONNECTOR

Numbered in order from upper left to lower right.

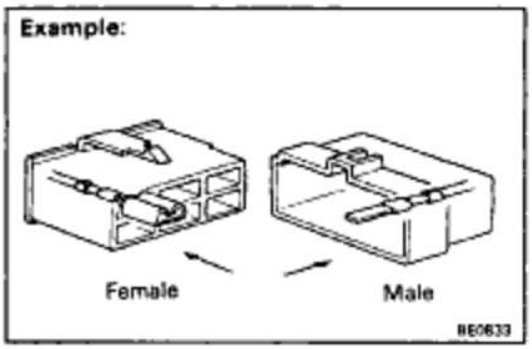
2. PIN NUMBER OF MALE CONNECTOR

Numbered in order from upper right to lower left.





HINT: When connectors with different of the same number of terminals are used with the same parts, each connector name (letter of the alphabet) and pin number is specified.



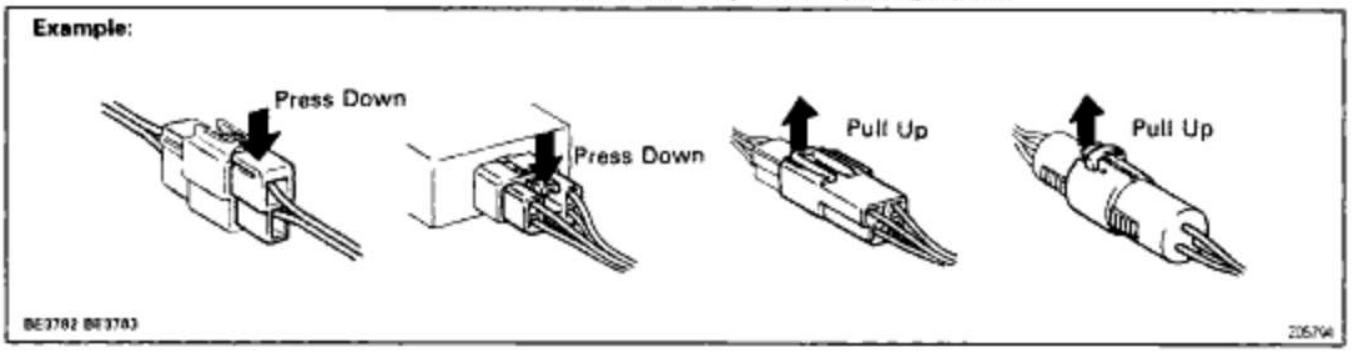
3. DISTINCTION OF MALE AND FEMALE CONNEC– TORS

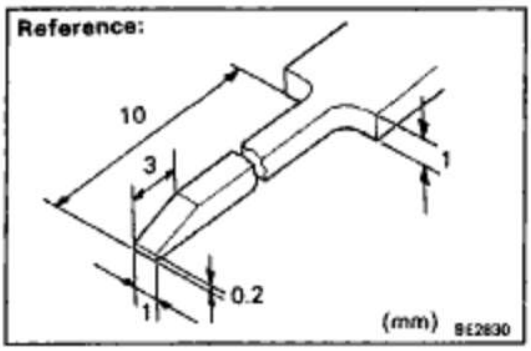
Male and female connectors are distinguished by shape of their internal pins.

(a) All connectors are –shown from the open end, and the lock is on top.

(b) To pull apart the connectors, pull on the connector itself, not the wires.

HINT: Check to see what kind of connector you are disconnecting before pulling apart.





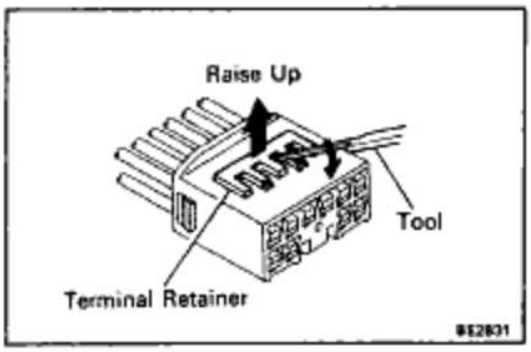
HOW TO REPLACE TERMINAL

(with terminal retainer or secondary locking device)

1. PREPARE THE SPECIAL TOOL

HINT: To remove the terminal from the connector, please construct and use the special tool or like object shown on the left.

2. DISCONNECT CONNECTOR

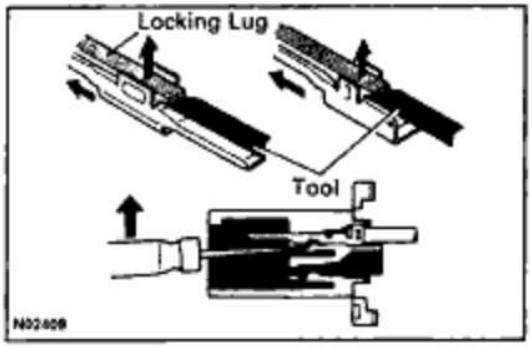


3. DISENGAGE THE SECONDARY LOCKING DEVICE OR TERMINAL RETAINER

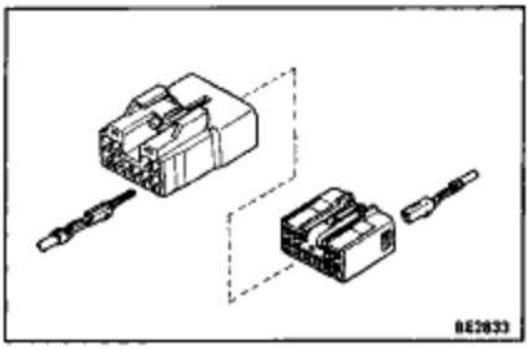
(a) Locking device must be disengaged before the terminal locking clip can be released and the terminal removed from the connector.

(b) Use a special tool or the terminal pick to unlock the secondary locking device or terminal retainer.

NOTICE: Do not remove the terminal retainer from connector body.



(c) Release the locking lug from terminal and pull the terminal out from rear.

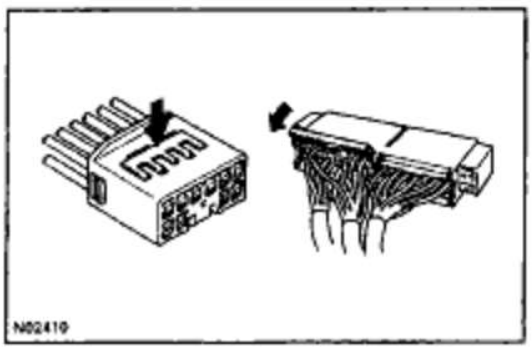


4. INSTALL TERMINAL TO CONNECTOR

(a) Insert the terminal.

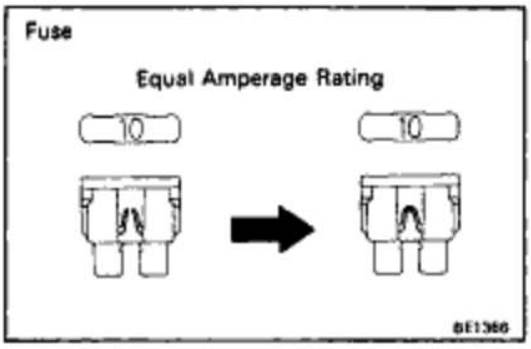
HINT:

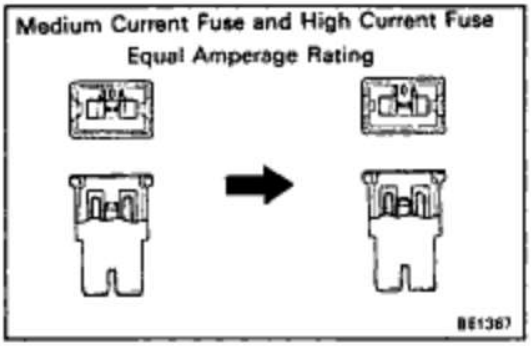
1. Make sure the terminal is positioned correctly.
2. Insert the terminal until the locking lug locks firmly.
3. Insert the terminal with terminal retainer in the temporary lock position.

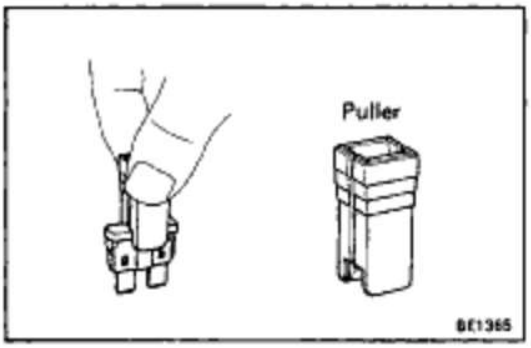


(b) Push the secondary locking device or terminal retainer in to the full lock position.

5. CONNECT CONNECTOR







FUSE REPLACEMENT

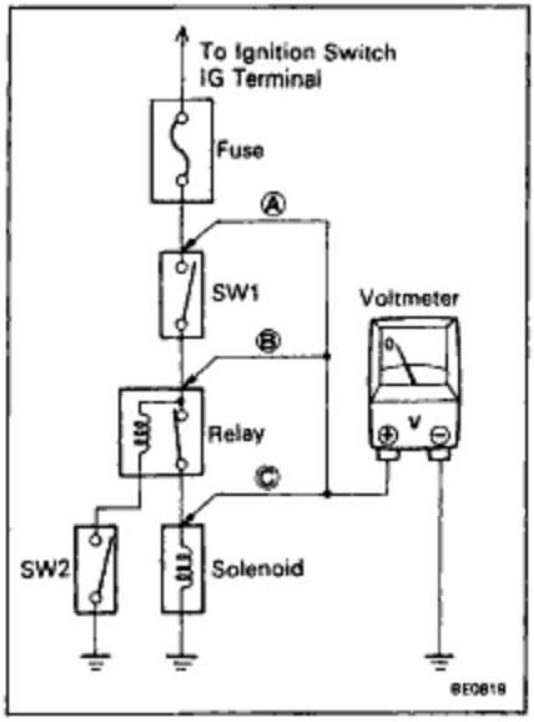
HINT: If replacing the fuse be sure to replace it with a fuse with an equal amperage rating.

NOTICE:

- **Turn off all electrical components and the ignition switch before replacing a fuse or fusible link. Do not exceed the fuse or fusible link amperage rating.**
- **Always use a fuse puller for removing and inserting a fuse. Remove and insert straight in and out without twisting. Twisting could force open the terminals too much, resulting in a bad connection.**

If a fuse or fusible link continues to blow, a short circuit is indicated. The system must be checked by a qualified technician.

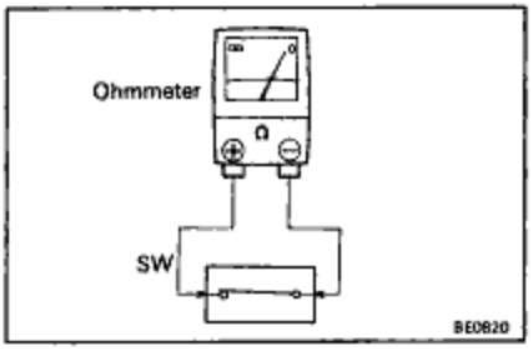
HINT: The puller is located at Junction Block No.2.



VOLTAGE CHECK

(a) Establish conditions in which voltage is present at the check point.
Example:
A–Ignition SW on
B–Ignition SW and SW 1 on
C–Ignition SW, SW 1 and Relay on (SW 2 off)

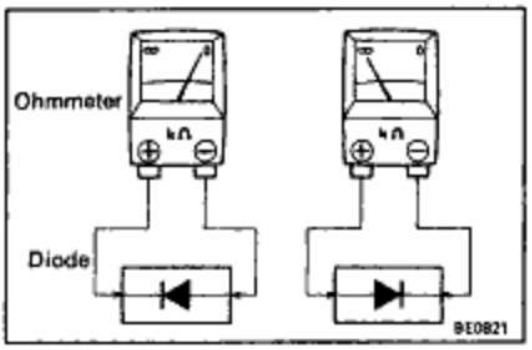
(b) Using a voltmeter, connect the negative (–) lead to a good ground point or negative (–) battery terminal and the positive (+) lead to the connector or compo–nent terminal. This check can be done with a test bulb instead of a voltmeter.



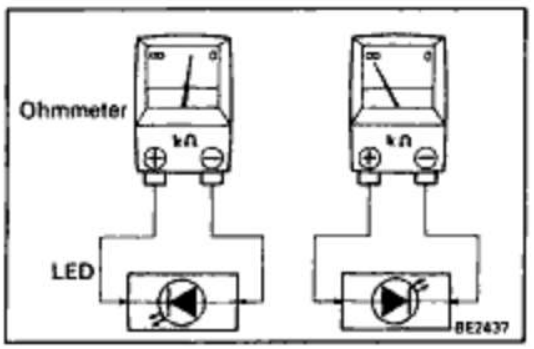
CONTINUITY AND RESISTANCE CHECK

(a) Disconnect the battery terminal or wire so there is no voltage between the check points.

(b) Contact the 2 leads of an ohmmeter to each of the check points.

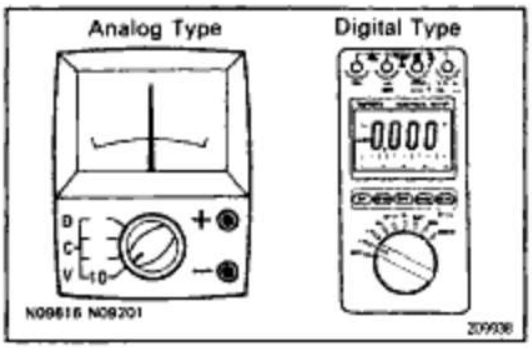


If the circuit has diodes, reverse the 2 leads and check again.
When contacting the negative (–) lead to the diode positive (+) side and the positive (+) lead to the negative (–) side, there should be continuity. When contacting the 2 leads in reverse, there should be no continuity.
HINT: Specifications may vary depending on the type of tester, so refer to the tester's instruction manual before performing the inspection.

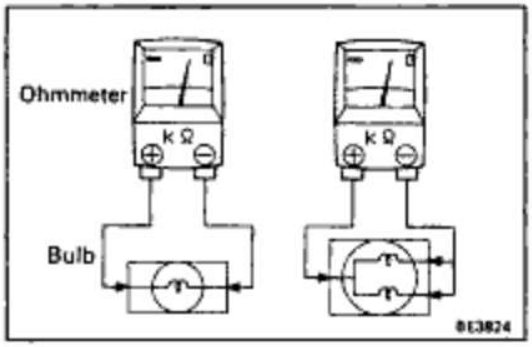


Check LED (Light Emitting Diode) in the same manner as that for diodes.
HINT:

- Use a tester with a power source of 3 V or greater to overcome the circuit resistance.
- If a suitable tester is not available, apply battery positive voltage and check that the LED lights up.

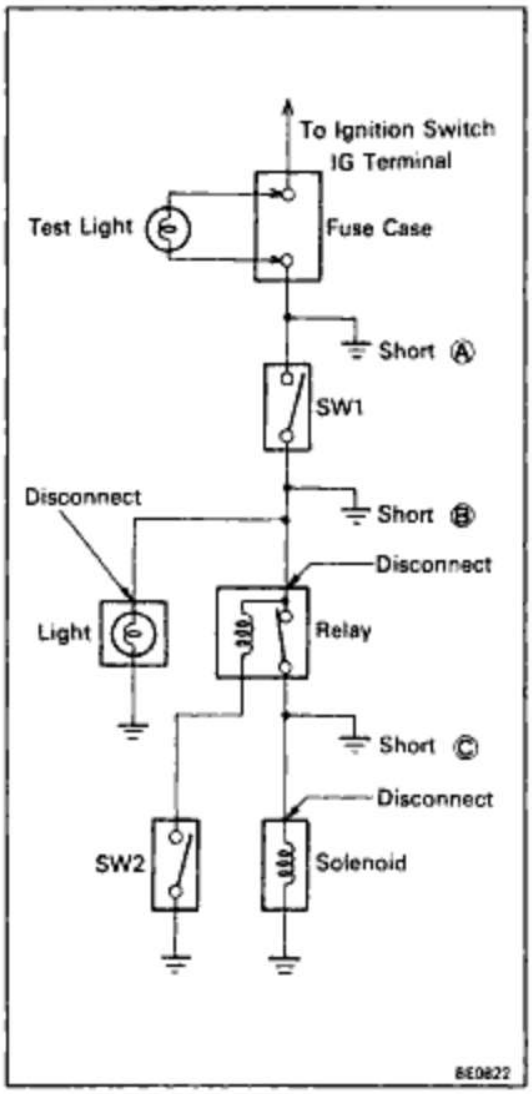


(c) Use a volt/ohmmeter with high impedance (10 k/V minimum) for troubleshooting of the electrical circuit.



BULB CHECKING

(a) Remove the bulb.
(b) There should be continuity between the respective terminals of the bulb together with a certain amount of resistance.
(c) Apply the 2 leads of the ohmmeter to each of the terminals.
(d) Apply battery positive voltage and check that the bulb lights up.



SHORT CIRCUIT CHECK

(a) Remove the blown fuse and eliminate all loads from the fuse.
(b) Connect a test bulb in place of the fuse.
(c) Establish conditions in which the test bulb comes on.
Example:
A–Ignition SW on
B–Ignition SW and SW 1 on
C–Ignition SW, SW 1 and Relay on (Connect the Relay) and SW 2 off (or Disconnect SW 2)
(d) Disconnect and reconnect the connectors while wat–ching the test bulb. The short lies between the con–nector where the test bulb stays lit and the connector where the bulb goes out.
(e) Find the exact location of the short by lightly shaking the problem wire along the body.

PRECAUTION

Take care to observe the following precautions when performing inspections or remOval and replacement of body electrical related parts.

HEADLIGHT SYSTEM

- Halogen bulbs have pressurized gas inside and require special handling. They can burst or scatter if scratched or dropped. Hold a bulb only by its plastic or metal case.
  Don't touch the glass part of a bulb with bare hands.

SRS (SUPPLEMENTAL RESTRAINT SYSTEM)

- Work must be started after 90 seconds from the time the ignition switch is turned to the "LOCK" position and the negative (–) terminal cable is disconnected from the battery.
- When disconnecting any of the connectors in the SRS, be sure to lock the ignition switch and disconnect the negative (–) terminal cable from the battery first. Since the connectors are twin lock type connectors, disconnect the connectors only after releasing the first stage lock.
- When connecting SRS connectors, be sure to lock them securely. (If the connectors are not locked securely, the system may not operate when needed.)
- Always store the steering wheel pad with the pad surface facing upward. (Storing the pad with its metallic surface up may lead to a serious accident if the air bag inflates for some reason.)
- When installing the spiral cable, be sure the vehicle is in the straight ahead condition and confirm that the spiral cable is in the neutral position when it is installed. (See page BE–28)
- INFORMATION LABELS (NOTICE) are attached to the periphery of the air bag components. Follow the NOTICE.

AUDIO SYSTEM

- If the negative (–) terminal cable is disconnected from the battery, the preset AM, FM 1 and FM 2 stations stored in memory are erased, so be sure to note the stations and reset them after the battery terminal is reconnected.
- If the negative (–) terminal cable is disconnected from the battery, the "ANTI–THEFT SYSTEM" will operate when the cable is reconnected, but the radio, tape player and CD player will not operate. Be sure to input the correct ID number so that the radio, tape player and CD player can be operated again.

MOBILE COMMUNICATION SYSTEM

- If the vehicle is equipped with a mobile communication system, refer to precautions in the IN section.

PREPARATION

SST (SPECIAL SERVICE TOOLS)

	09213–31021 Crankshaft Pulley Puller	For removing steering wheel

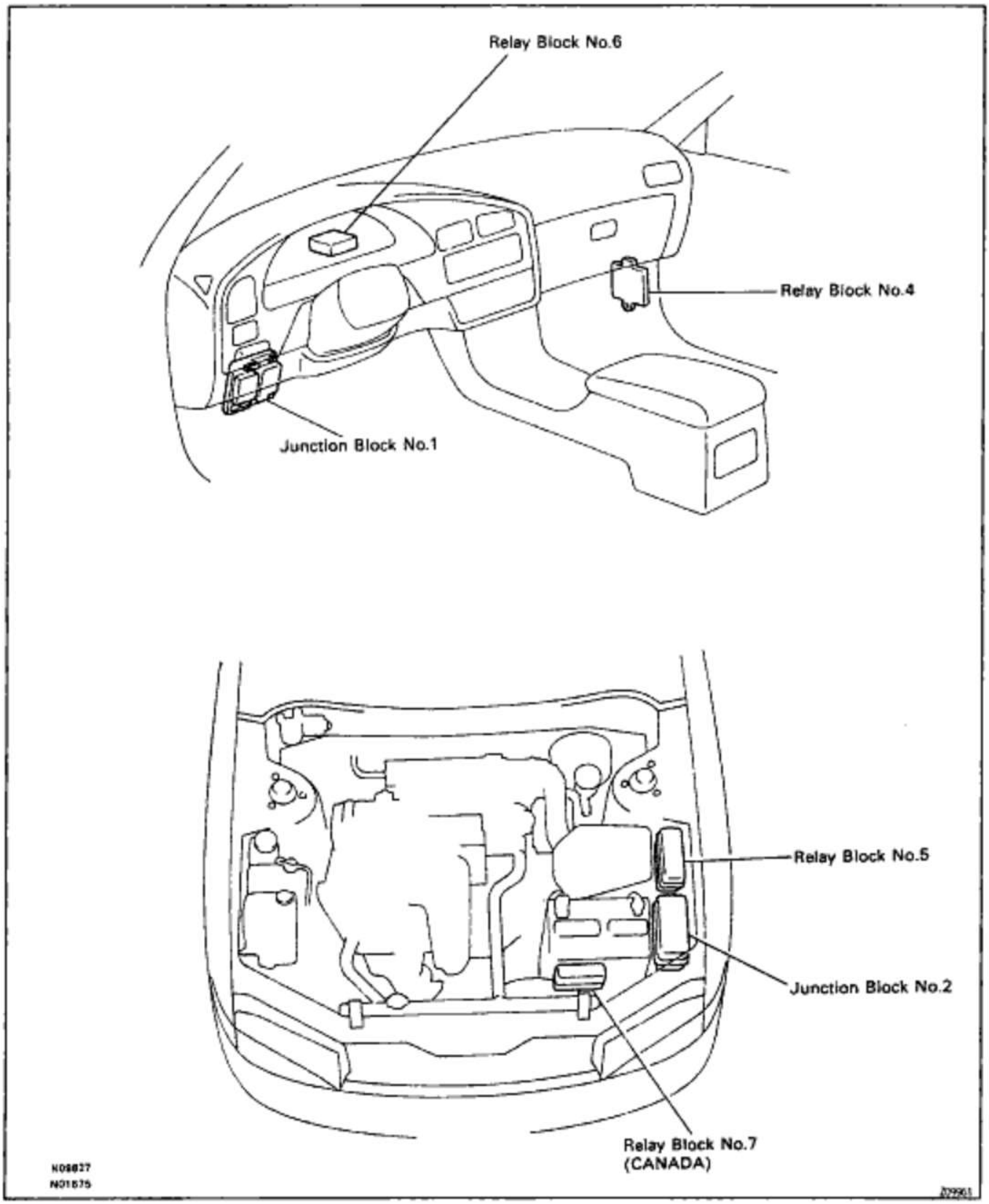
RECOMMENDED TOOLS

	09062–00050 TOYOTA Electrical Tester Set	
	09041–00030 Torx Driver T30	For removing and installing steering wheel pad
	09042–00010 Torx Socket T30	For removing and installing steering wheel pad

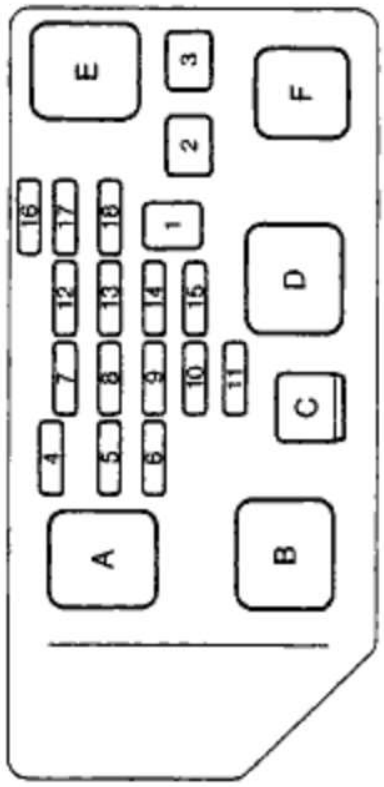
EQUIPMENT

Voltmeter	
Ammeter	
Ohmmeter	
Test lead	
Syphon	Brake fluid level warning switch
Bulb (3.4 W)	Fuel sender gauge, Seat belt warning relay
Bulb (21 W)	Turn signal flasher relay
Dry cell battery	Fuel sender gauge
Torque wrench	
Masking tape	Rear window defogger wire
Tin foil	Rear window defogger wire

POWER SOURCE
PARTS LOCATION



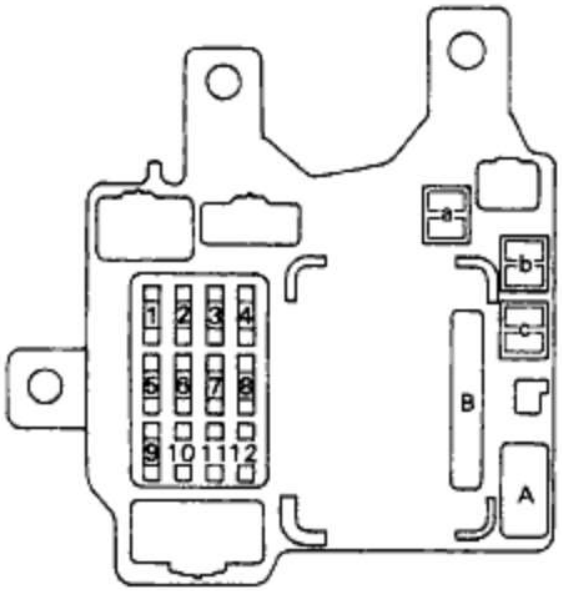
Junction Block No.2



MEDIUM CURRENT FUSES
1. MAIN 40A
2. RDI 30A
3. CDS 30A
FUSES
4. –
5. EFI 15A
6. HORN 10A
7. OBD, TRAC 7.5A
8. HAZ 1 OA
9. DOME 20A
10. H–LP LH 15A
11. H–LP RH 15A
12. ALT 7.5A
13. AMZ 30A
14. ECU–B 15A
15. D.C.
C. SHORT
RELAYS
A. EFI Relay
B. Starter Relay
C. HORN Relay
D. HEAD (Headlight Control) Relay
E. ENG MAI
N. FR–DEF Relay
F. FAN Relay

15A
10A
7.5A
10A
20A
15A
15A
7.5A
30A
15A
SHORT

Junction Block No. 1 (Rear Side)

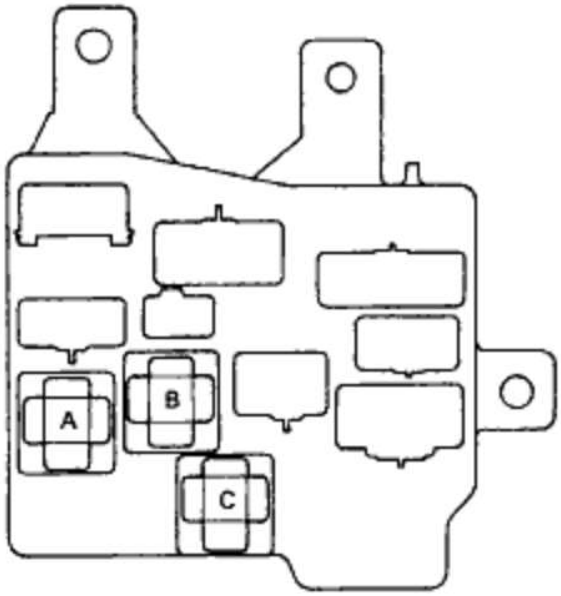


A. Noise Filter
MEDIUM CURRENT FUSES
a. AM 1 40A
b. POWER 30A
c. DEFOG 40A
FUSES
1. ECU–IG 15A
2. GAUGE 10A
3. STOP 15A
4.
5. WIPER 20A
6. TURN 7.5A
7. 1G2 7.5A
8. CIGI RADIO 15A
9. MIR HTR 10A
10. TAIL 15A
11. ECU–S 15A
12. –
RELAY
B. Integration Relay

15A
10A
15A
20A
7.5A
7.5A
15A
10A
15A
15A

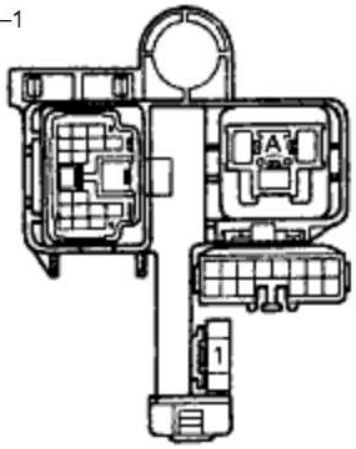
N09595
N01803

Junction Block No. 1 (Front Side)



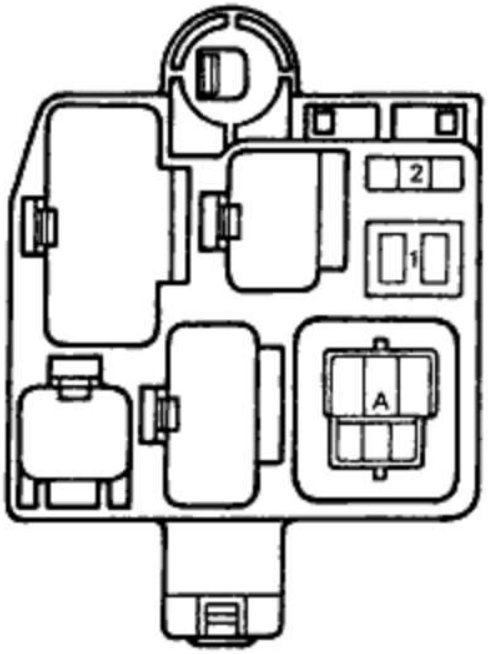
RELAYS
A. Power Main Relay
B. Taillight Control Relay
C. Defogger Relay

Relay Block No–1



FUSE
1. ST Fuse 10A
RELAY
A. Turn Signal Flasher

Relay Block No.4

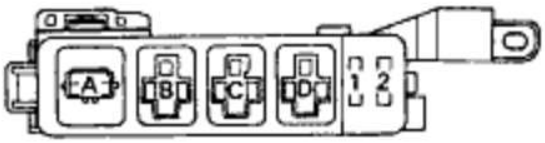


FUSES
Medium Current Fuse
1. HEATER 40A
Fuse
2. A/C 1 OA
RELAY
A. Heater Relay

N01804
N09788
N01805

Relay Block No.5

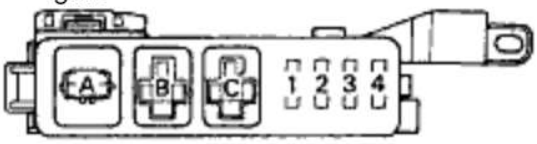
- 5S–FE Engine



FUSES
1. HEAD RH (Lo) 15A (CANADA)
2. HEAD LH (Lo) 15A (CANADA)

RELAYS
A. Daytime Running Light Relay No.2 (CANADA)
B. Magnet Clutch Relay
C. FAN No.2 Relay
D. FAN No.3 Relay

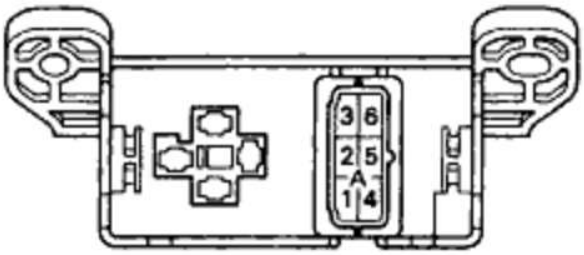
- 1 MZ–FE Engine



FUSES
1. —
2. —
3. HEAD RH (Lo) 15A (CANADA)
4. HEAD LH (Lo) 15A (CANADA)

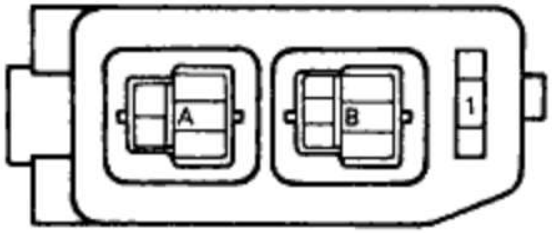
RELAYS
A. Daytime Running Light Relay No.2 (CANADA)
6. Magnet Clutch Relay
C. Fuse Pump Relay

Relay Block No.6



RELAY
A. Circuit Opening Relay

Relay Block No.7 (CANADA)



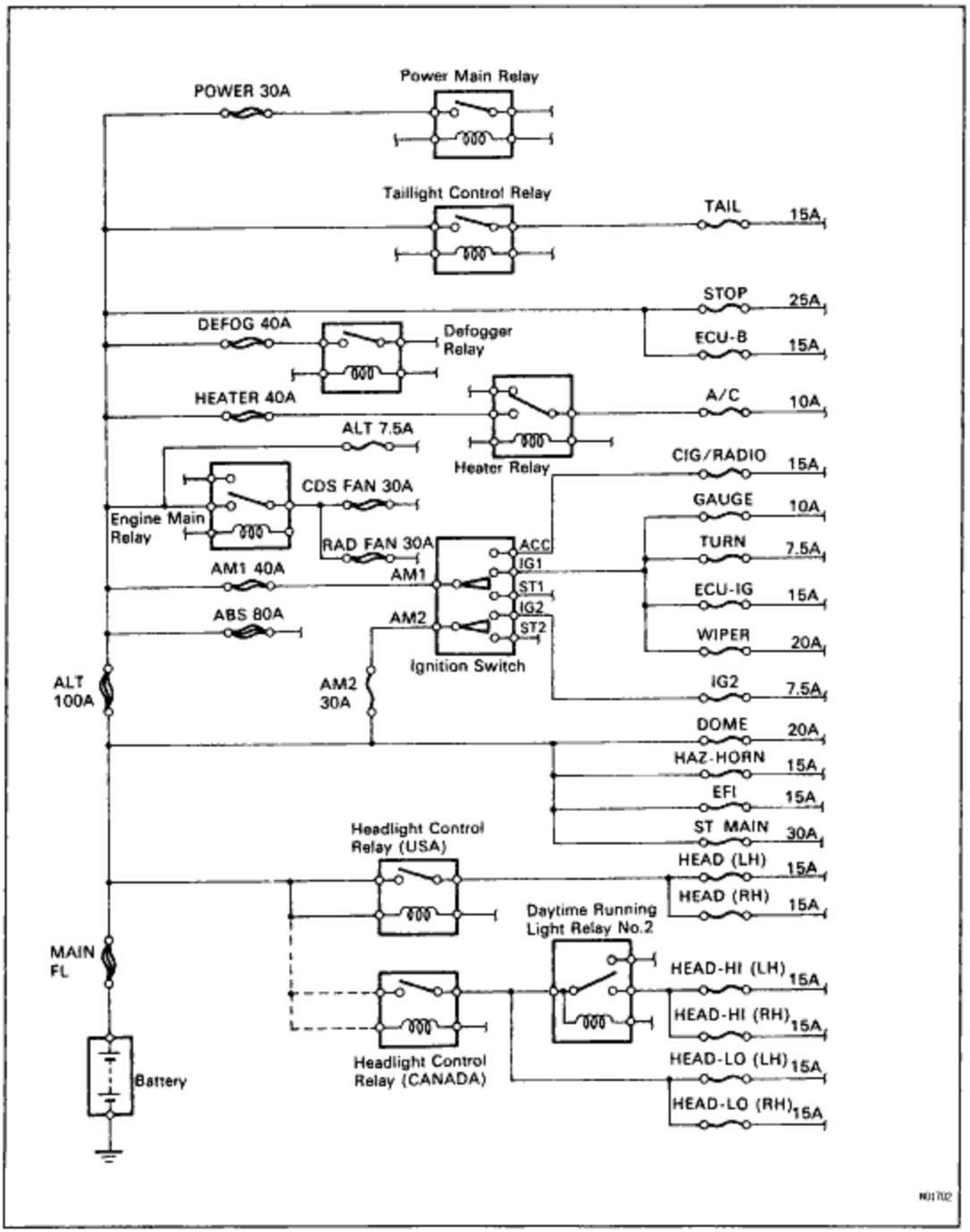
FUSE
1. DRL 7.5A

RELAYS
A. DRL No.4 Relay
B. DRL No.3 Relay

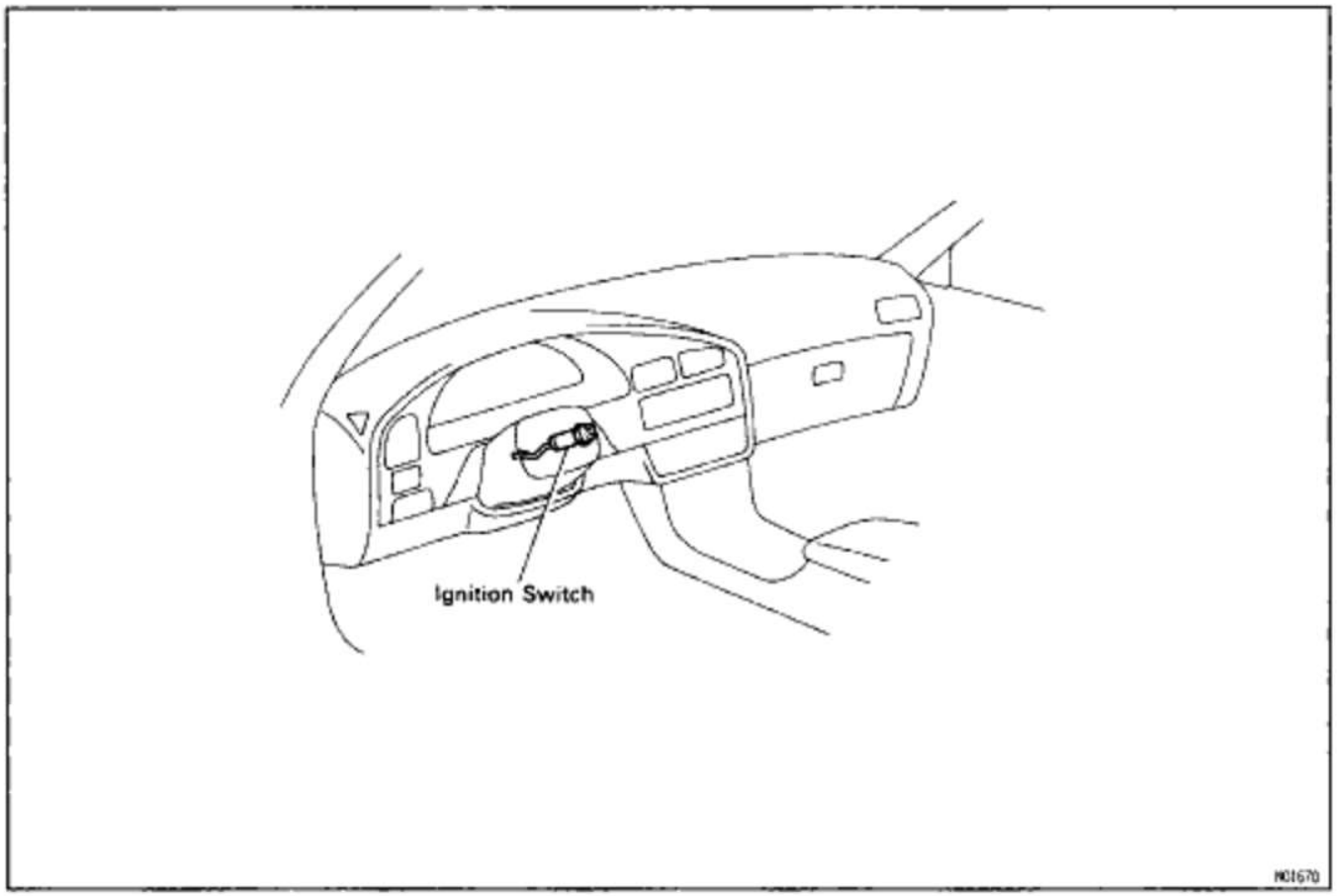
N01860
N01806
N09782
N01808

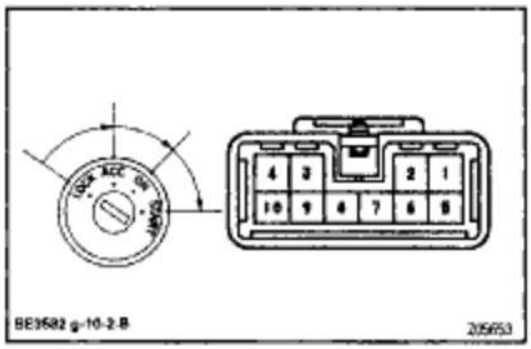
209964

WIRING DIAGRAM



IGNITION SWITCH
PARTS LOCATION





IGNITION SWITCH INSPECTION

INSPECT IGNITION SWITCH

Continuity

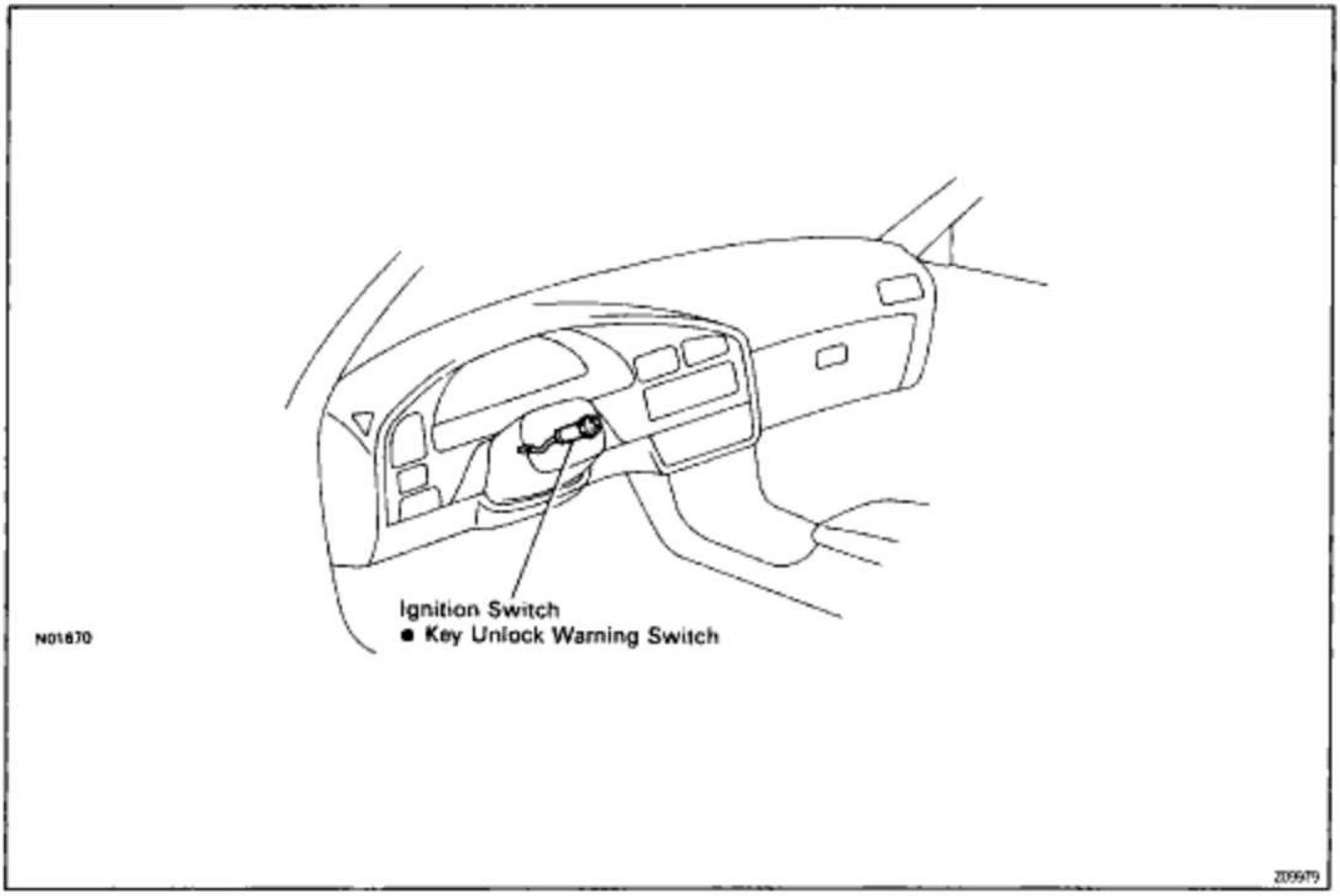
Inspect the switch continuity between terminals.

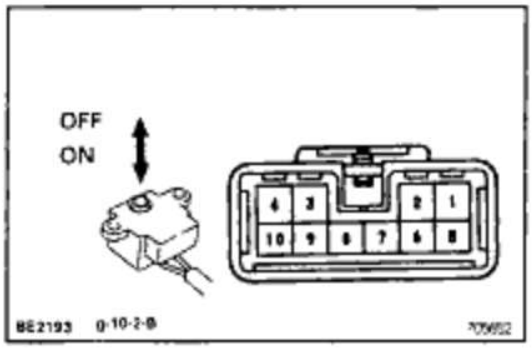
Switch position	Tester connection to terminal number	Specified value
LOCK	–	No continuity
ACC	3–4	Continuity
ON	2–3–4 9–10	Continuity
START	2–4–7 6–9–10	Continuity

If continuity is not as specified, replace the switch.

KEY UNLOCK WARNING SYSTEM

PARTS LOCATION





KEY UNLOCK WARNING SWITCH INSPECTION

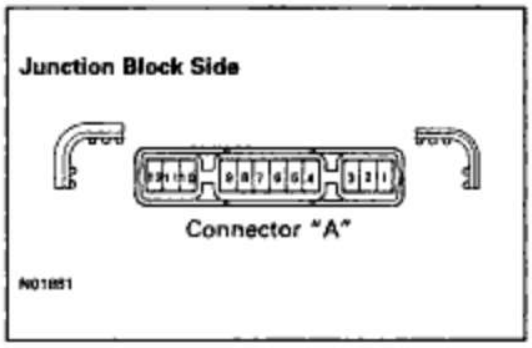
INSPECT KEY UNLOCK WARNING SWITCH

Continuity

Inspect the switch continuity between terminals.

Condition	Tester connection to terminal number	Specified value
Switch OFF (Key removed)	–	No continuity
Switch ON (Key set)	1–5	Continuity

If continuity is not as specified, replace the switch.



INTEGRATION RELAY INSPECTION

INSPECT INTEGRATION RELAY

Relay Circuit/ Key Unlock Warning System

Remove the relay from the junction block No.1 and inspect the connectors on the junction block side.

Tester connection to terminal number	Condition	Specified value (Continuity)
A5 – Ground	Key unlock warning switch OFF	No continuity
A5 – Ground	Key unlock warning switch ON	Continuity
A6 – Ground	Driver's door courtesy switch OFF	No continuity
A6 – Ground	Driver's door courtesy switch ON	Continuity
A 10 – Ground	Constant	Continuity
Tester connection to terminal number	Condition	Specified value (Voltage)
A1 – Ground	Constant	Battery positive voltage
A7 – Ground	Ignition switch position LOCK or ACC	No voltage
A7 – Ground	Ignition switch position ON	Battery positive voltage

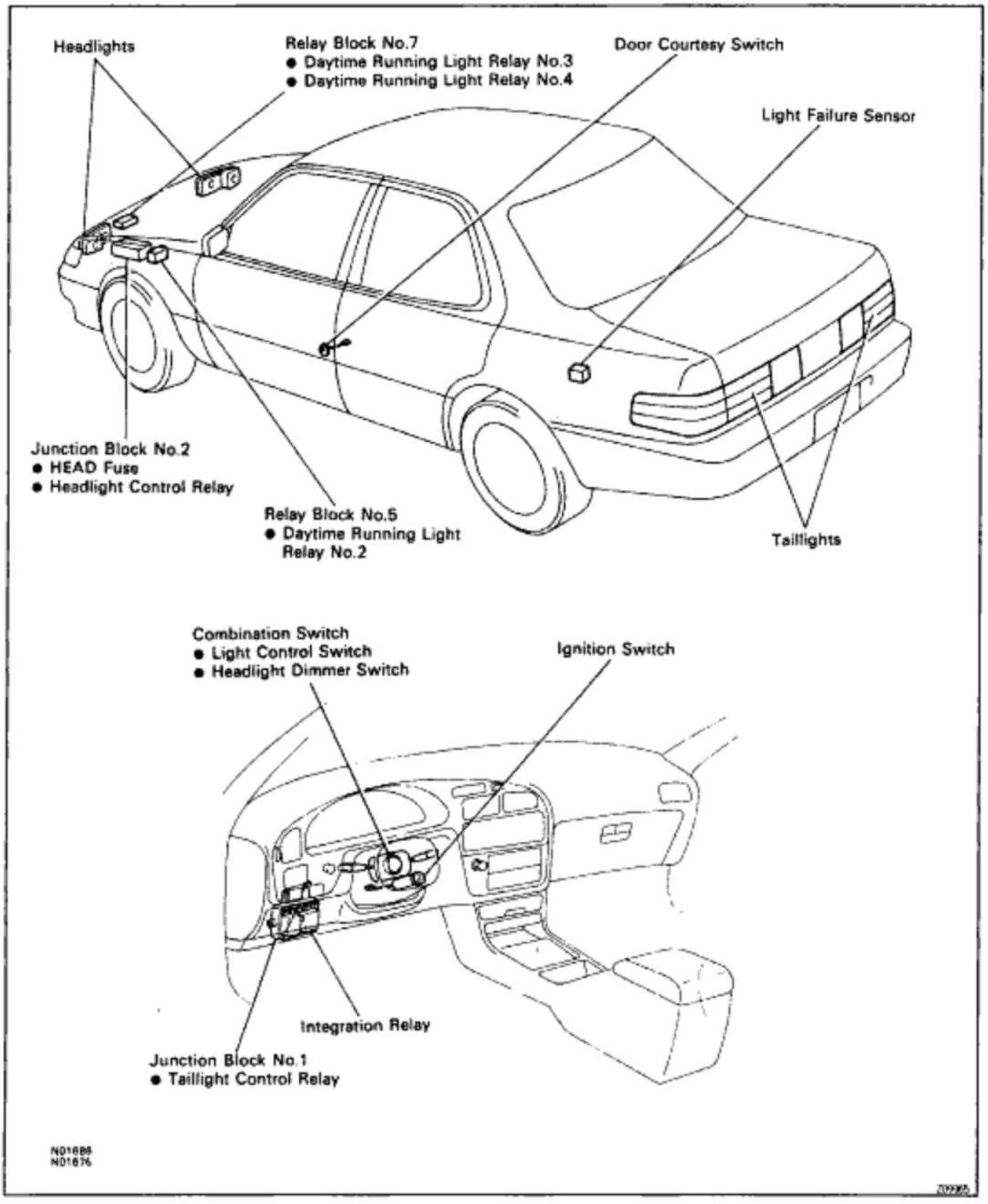
If circuit is as specified, trying replacing the relay with a new one.
Is circuit is not as specified, inspect the circuits con–nected to other parts.

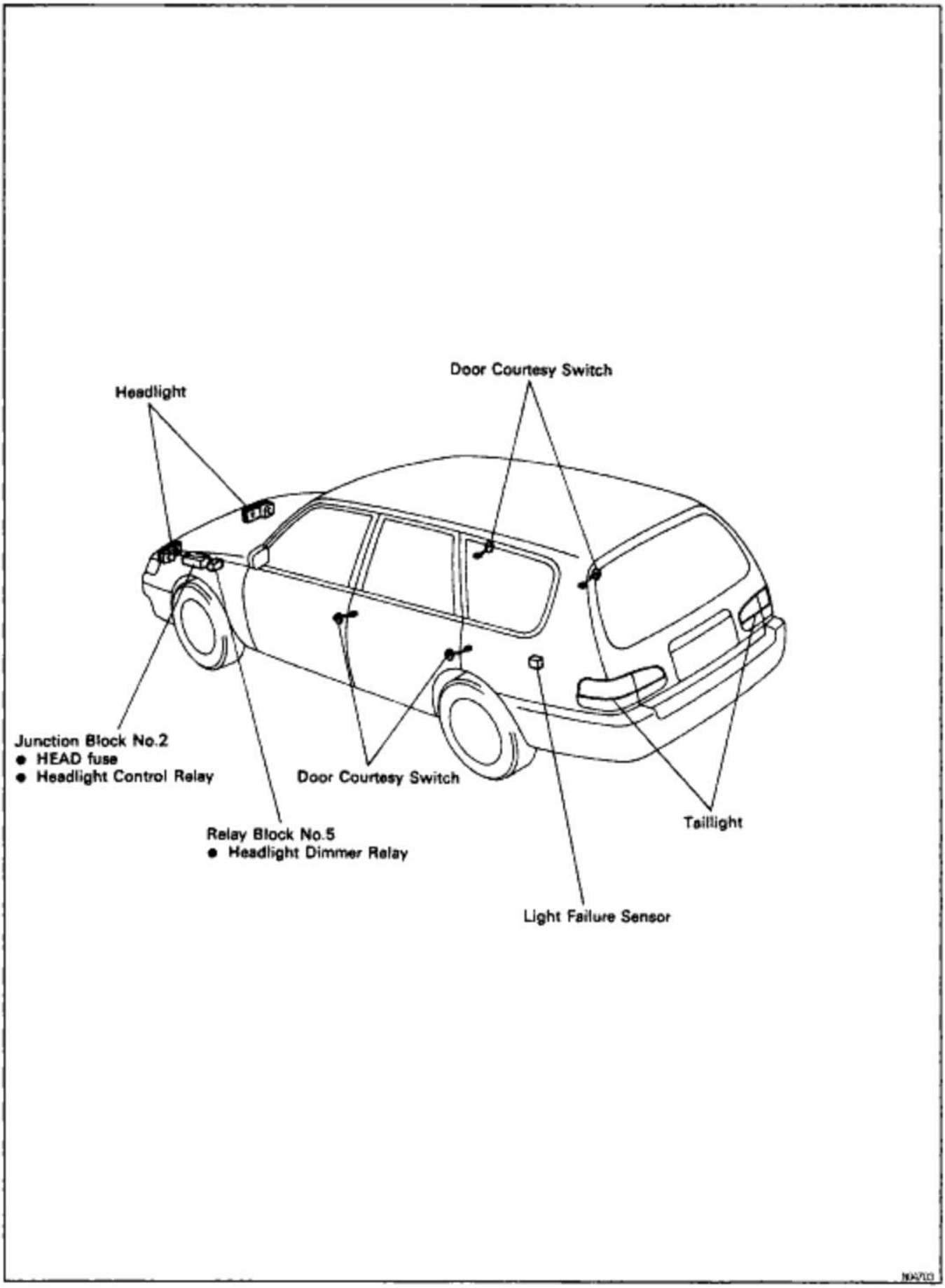
DOOR COURTESY SWITCH

See page BE–43.

HEADLIGHT AND TAILLIGHT SYSTEM

PARTS LOCATION




Door Courtesy Switch
Headlight
Junction Block No.2
● HEAD fuse
● Headlight Control Relay
Door Courtesy Switch
Taillight
Relay Block No.5
● Headlight Dimmer Relay
Light Failure Sensor

TROUBLESHOOTING

The table below will be useful for you in troubleshooting these electrical problems. The most likely causes of the malfunction are shown in the order of their probability. Inspect each part in the order shown, and replace the part when it is found to be faulty.

HEADLIGHT (USA)

Trouble	Parts name	(See page)
Headlight does not light. (Taillight is normal)	1. MAIN FL 2. Wire Harness 3. HEAD–(LH, RH) Fuse 4. Headlight Bulb	(BE–4)
Headlight does not light. (Taillight does not light up)	1. MAIN FL 2. Wire Harness 3. Headlight Control Relay 4. HEAD–(LH, RH) Fuse 5. Headlight Bulb	(BE–30) (BE–4)
Only one side light does not light.	1. HEAD–(LH, RH) Fuse 2. Headlight Bulb 3. Wire Harness	(BE–4)
"Lo– Beam" does not light.	1. Wire Harness 2. Headlight Bulb 3. Light Control Switch	(BE–29)
"Hi–Beam" does not light.	1. Headlight Dimmer Switch 2. Wire Harness 3. Light Control Switch	(BE–29) (BE–29)
'Flash" does not light.	1. Headlight Dimmer Switch 2. Wire Harness	(BE–29)
"Auto Turn –off System" dose not operate.	1. Integration Relay 2. GAUGE Fuse 3. Ignition Switch 4. Door Courtesy Switch (Driver's) 5. Wire Harness 6. DOME Fuse	(BE–31) (BE–4) (BE–14) (BE–43) (BE–4)

TAILLIGHT (USA)

Trouble	Parts name	(See page)
Taillight does not light. (Headlight does not light)	1. Light Control Switch 2. Integration Relay 3. Wire Harness	(BE–29) (BE–31)
Taillight does not light. (Headlight is normal)	1. TAIL Fuse 2. Taillight Control Relay 3. Light Control Switch 4. Integration Relay 5. Wire Harness	(BE–4) (BE–30) (BE–29) (BE–31)
Only one side light does not light.	1. Bulb 2. Wire Harness	
Rear Combination light does not light.	1. Wire Harness 2. Light Failure Sensor 3. Bulb	(BE–73)
"Auto Turn–Off System" dose not operate.	1. Integration Relay 2. Wire Harness 3. GAUGE Fuse 4. Door Courtesy Switch (Driver's)	(BE–31) (BE–4) (BE–43)

HEADLIGHT (CANADA)

Trouble	Parts name	(See page)
Headlight does not light. (Taillight is normal)	1. Wire Harness	
Headlight does not light. (Taillight does not light up)	1. MAIN FL 2. Wire Harness	
Only one side light does not light.	1. HEAD LO (LH, RH) Fuse 2. Headlight Bulb 3. Wire Harness	(BE–4)
"Lo–Beam" does not light.	1. Headlight Control Relay 2. Light Control Switch 3. Integration Relay 4. Wire Harness 5. HEAD LO (LH, RH) Fuse 6. Headlight Bulb	(BE–30) (BE–29) (BE–31) (BE–4)
'Hi–Beam' does not light.	1. DRL Fuse 2. Daytime Running Light Relay No.2 3. Daytime Running Light Relay (Main) 4. Daytime Running Light Relay No.3 5. Daytime Running Light Relay No.4 6. ECU – B Fuse 7. Headlight Dimmer Switch 8. Wire Harness 9. HEAD HI (LH, RH) Fuse 10. Headlight Bulb	(BE–4) (BE–33) (BE–32) (BE–33) (BE–34) (BE–4) (BE–29) (BE–4)
"Flash" does n6t light.	1. DRL Fuse 2. Daytime Running Light Relay No.2 3. Daytime Running Light Relay (Main) 4. Daytime Running Light Relay No.3 5. Daytime Running Light Relay No.4 6. ECU – B Fuse 7. Headlight Dimmer Switch 8. Wire Harness 9. HEAD HI (LH, RH) Fuse 10. Headlight Bulb	(BE–4) (BE–33) (BE–32) (BE–33) (BE–34) (BE–4) (BE–29) (BE–4)
'Auto Turn–off System' does not operate.	1. Integration Relay 2. GAUGE Fuse 3. Ignition Switch 4. Door Courtesy Switch (Drivers) 5. Wire Harness 6. DOME Fuse	(BE–31) (BE–4) (BE–14) (BE–43) (BE–4)
Headlight does not light with engine running and light control SW in OFF.	1. GAUGE Fuse 2. ECU – B Fuse 3'. Other Parts 4. Daytime Running Light Relay (Main) 5. Wire Harness 6. HEAD HI (LH, RH) Fuse 7. Headlight Bulb	(BE–4) (BE–4) (BE–32) (BE–4)

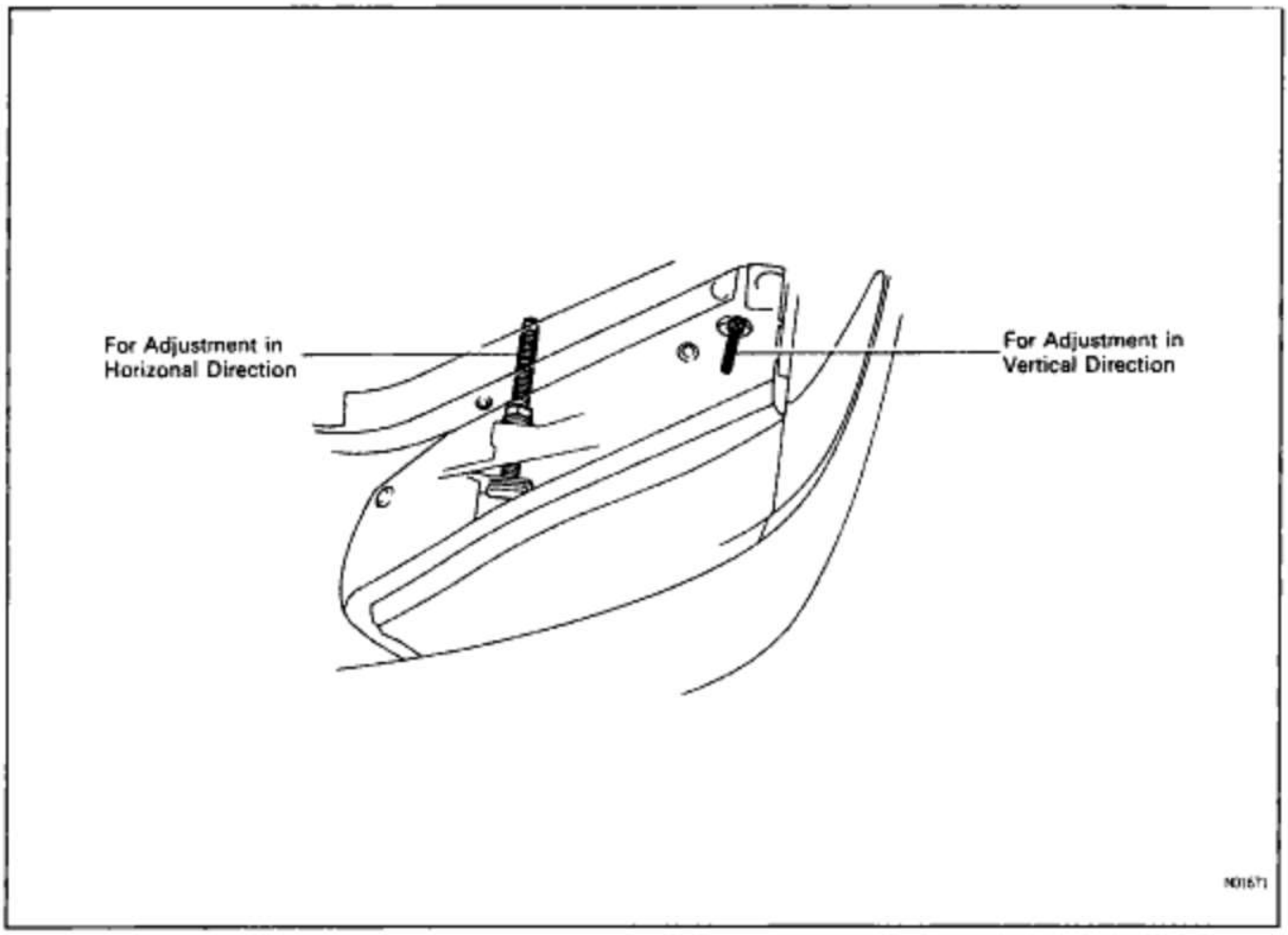
*Terminal L of Generator and Parking Brake Switch

TAILLIGHT (CANADA)

Trouble	Parts name	(See page)
Taillight does not light. (Headlight does not light)	1. Light Control Switch 2. Integration Relay 3. Wire Harness	(BE–29) (BE–31)
Taillight does not light. (Headlight is normal)	1. TAIL Fuse 2. Taillight Control Relay 3. Light Control Switch 4. Integration Relay 5. Wire Harness	(BE–4) (BE–30) (BE–29) (BE–31)
Only one side light does not light.	1. Bulb 2. Wire Harness	
Rear Combination light does not light.	1. Wire Harness 2. Light Failure Sensor 3. Bulb	(BE–73)
"Auto Turn–Off System" does not operate.	1. Integration Relay 2. GAUGE Fuse 3. Wire Harness 4. Door Courtesy Switch (Driver's)	(BE–31) (BE–4) (BE–43)

*1: Terminal L of Generator and Parking Brake Switch

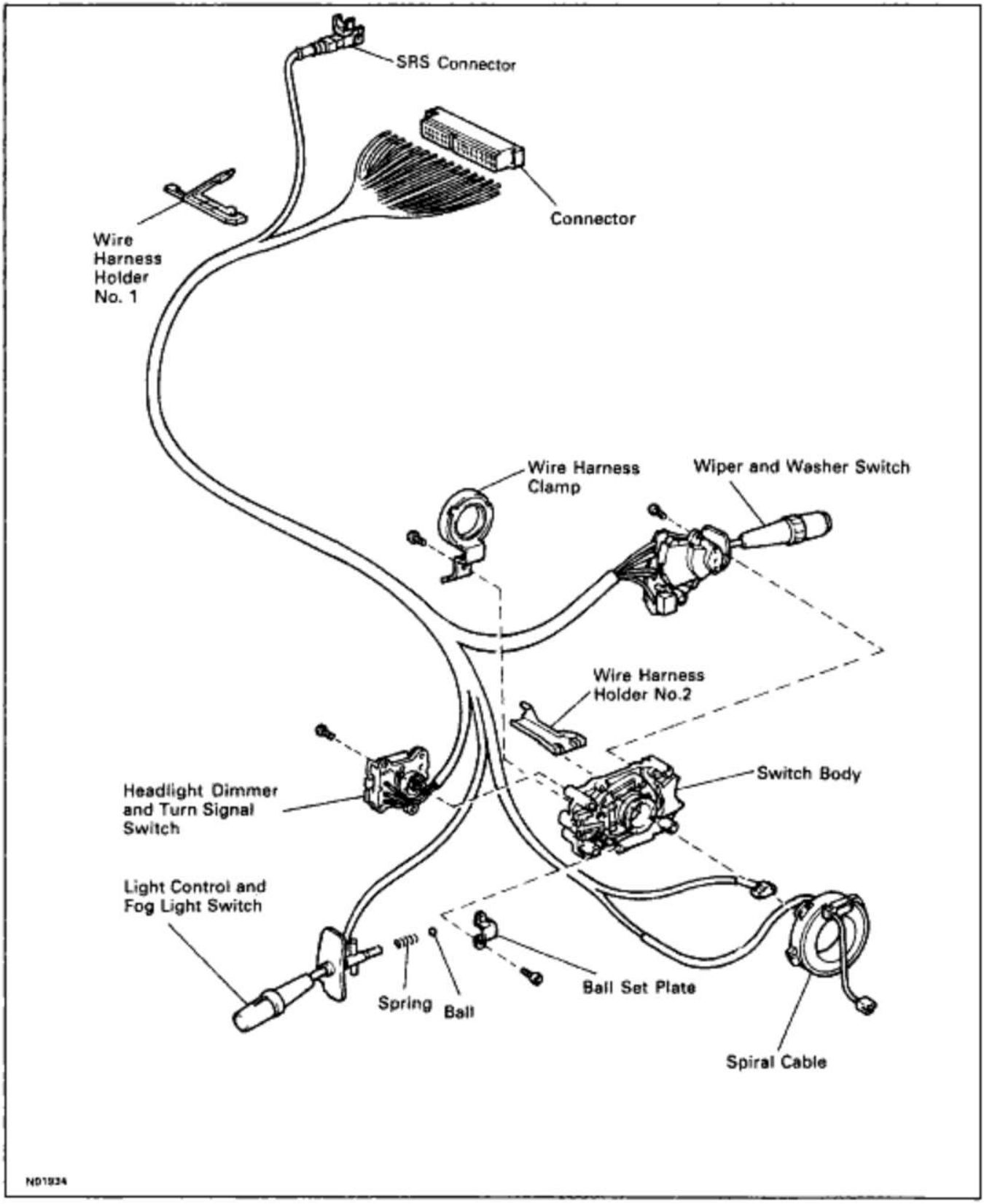
HEADLIGHT AIM ADJUSTMENT

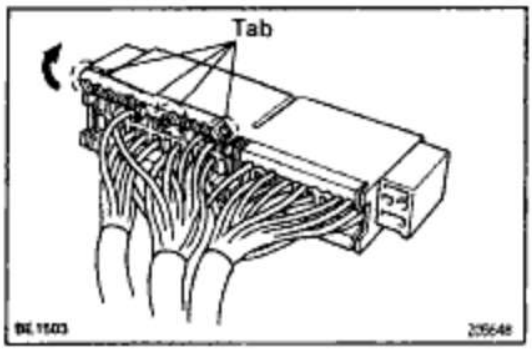


COMBINATION SWITCH REMOVAL

See page BO–108.

COMBINATION SWITCH DISASSEMBLY
Components



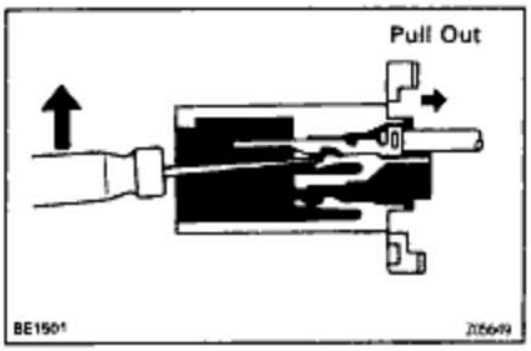


1. REMOVE WIRE HARNESS HOLDER NO.1

2. REMOVE TERMINALS FROM CONNECTOR

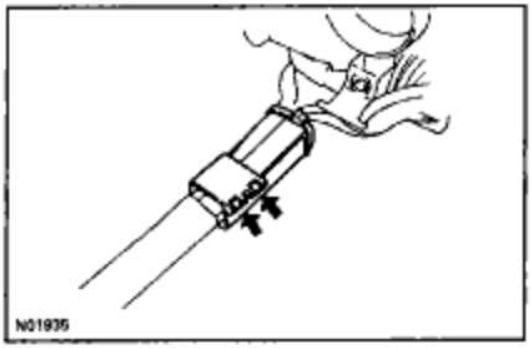
(a) Release the 4 tabs and open the terminal cover.

NOTICE: Do not remove terminal for SRS connector (Yellow).



(b) From the open end, insert a miniature screwdriver between the locking lug and terminal.

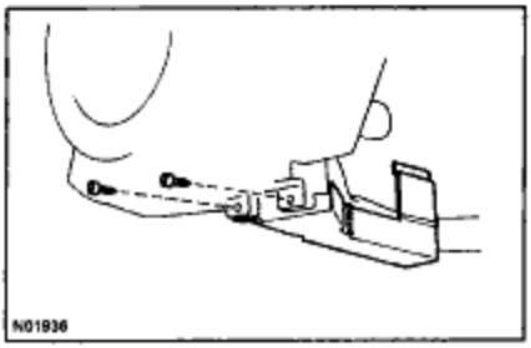
(c) Pry down the locking lug with the screwdriver and pull the terminal out from the rear.



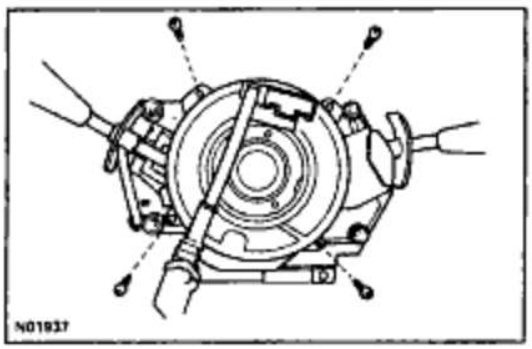
3. REMOVE WIRE HARNESS HOLDER NO. 2

(a) Remove the clamp.

(b) Pry loose 2 locking lugs.



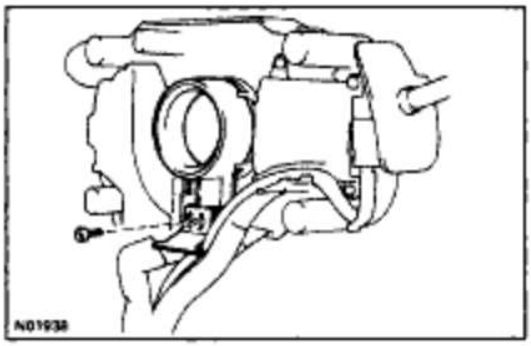
(c) Remove the 2 screws and the wire harness holder No. 2.



4. REMOVE SPIRAL CABLE SUBASSEMBLY

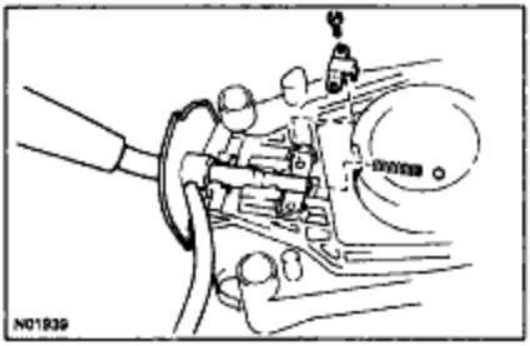
(a) Disconnect the connector.

(b) Remove the 4 screws and the spiral cable sub–assembly.



5. REMOVE WIRE HARNESS CLAMP

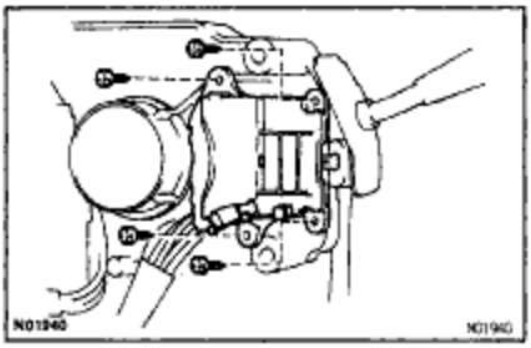
Remove the screw and the wire harness clamp.



6. REMOVE LIGHT CONTROL AND FOG LIGHT SWITCH

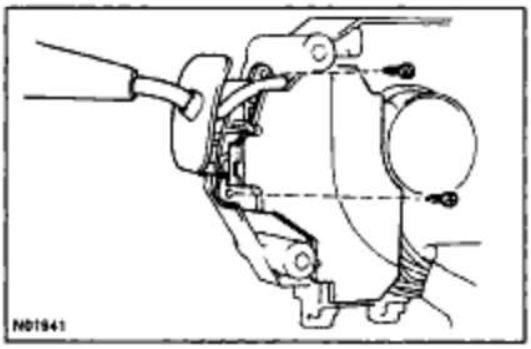
(a) Remove the 2 screws and the ball set plate from the switch body.

(b) Remove the ball and side out the switch from the switch body with the spring.



7. REMOVE HEADLIGHT DIMMER AND TURN SIGNAL SWITCH

Remove the 4 screws and the headlight dimmer and turn signal switch from the switch body.

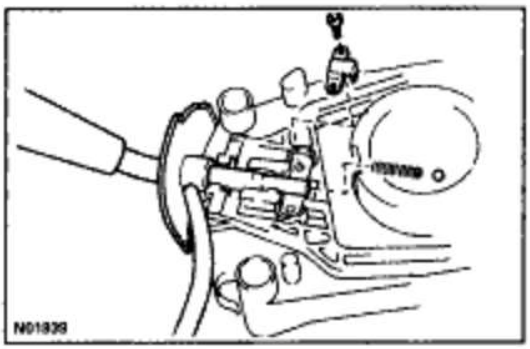


8. REMOVE WIPER AND WASHER SWITCH

Remove the 2 screws and the wiper and washer switch from the switch body.

COMBINATION SWITCH ASSEMBLY

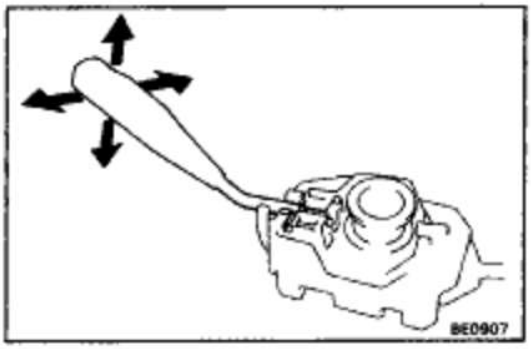
INSTALL PARTS OF COMBINATION SWITCH IN REVERSE SEQUENCE OF DISASSEMBLY (MAIN POINT OF ASSEMBLY)



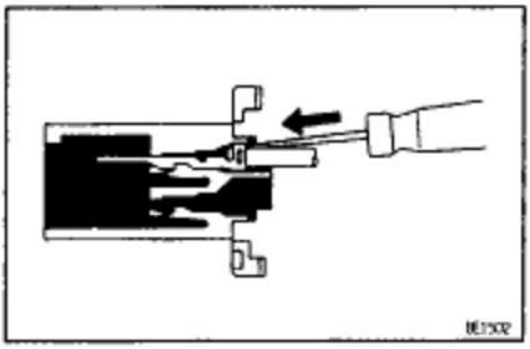
1. INSTALL LIGHT CONTROL SWITCH

(a) Slide the switch and install the switch body.

(b) Set the lever in the HI position, and install the ball and plate.

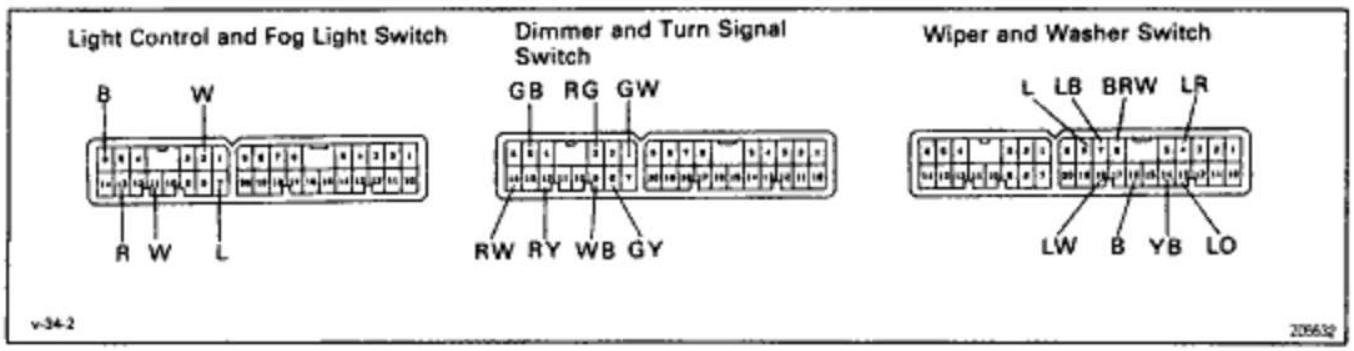


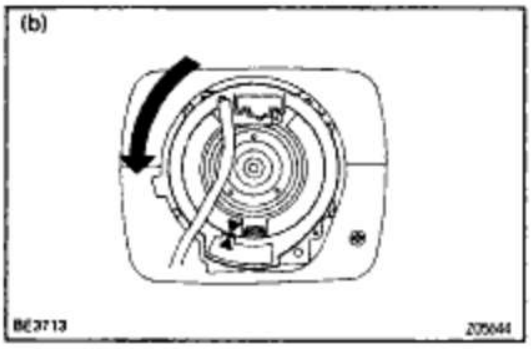
(c) After installing the light control switch to the switch body, insure that the switch operation is smooth.



2. INSTALL TERMINALS TO CONNECTOR

- Push in the terminal until it is securely locked in the connector lug.
- Install each switch terminal, as shown in the figure.





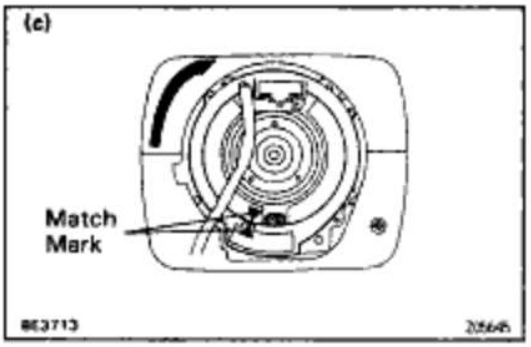
COMBINATION SWITCH INSTALLATION

For installation, follow the removal procedure in re–verse.

(MAIN POINT OF INSTALLATION)

ADJUSTMENT OF SPIRAL CABLE

(a) Check that the front wheels are facing straight ahead.
(b) Turn the spiral cable counterclockwise by hand until it becomes harder to turn the cable.

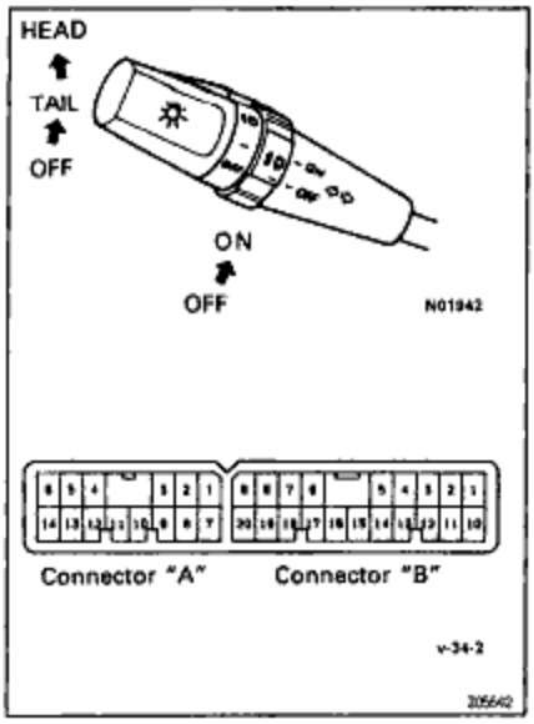


(c) Then rotate the spiral cable clockwise about 3 turns to align the red mark.

HINT:

- The spiral cable will rotate about 3 turns to either left or right of the center.
- The connector should be straight up.

(d) Install the steering wheel so that the match marks will not be misaligned.



COMBINATION SWITCH INSPECTION

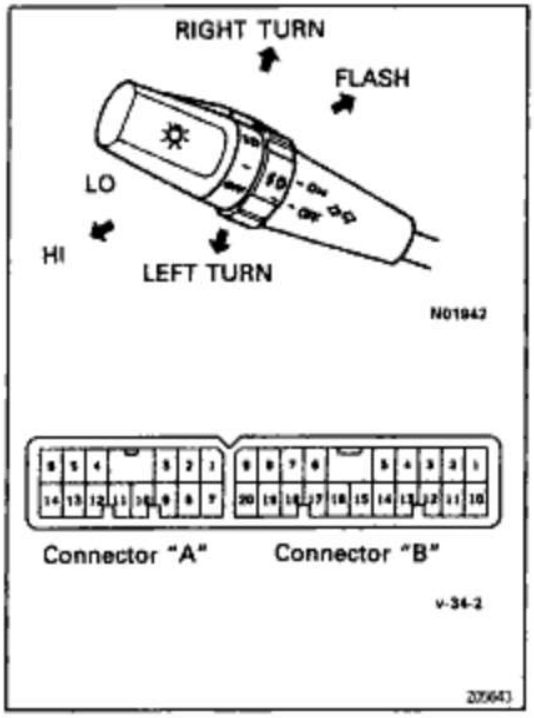
1. INSPECT LIGHT CONTROL SWITCH

Continuity

Inspect the switch continuity between terminals.

Switch position	Tester connection to terminal number	Specified value
OFF	–	No continuity
TAIL	A2 – All	Continuity
HEAD	A2 –All –A13	Continuity

If continuity is not as specified, replace the switch.



2. INSPECT DIMMER SWITCH

Continuity

Inspect the switch continuity between terminals.

Switch position	Tester connection to terminal number	Specified value
Flash	A9–A12–A14	Continuity
Low beam	A3 – A9	Continuity
High beam	A9 – A12	Continuity

If continuity is not as specified, replace the switch.

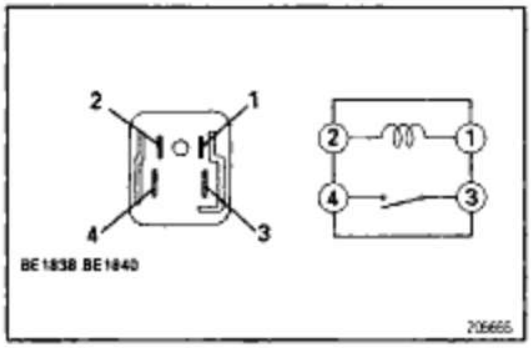
3. INSPECT TURN SIGNAL SWITCH

Continuity

Inspect the switch continuity between terminals.

Switch position	Tester connection to terminal number	Specified value
Left turn	A 1 – A5	Continuity
Neutral	–	No continuity
Right turn	A 1 – A8	Continuity

If continuity is not as specified, replace the switch.



HEADLIGHT CONTROL RELAY INSPECTION

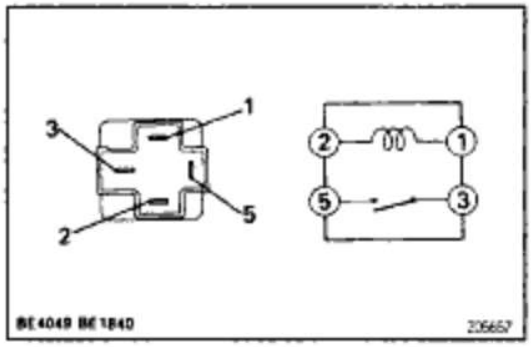
INSPECT HEADLIGHT CONTROL RELAY

Continuity

Inspect the relay continuity between terminals.

Condition	Tester connection to terminal number	Specified value
Constant	1–2	Continuity
Apply B + between terminals 1 and 2.	3–4	Continuity

If continuity is not as specified, replace the relay.



TAILLIGHT CONTROL RELAY INSPECTION

INSPECT TAILLIGHT CONTROL RELAY

Continuity

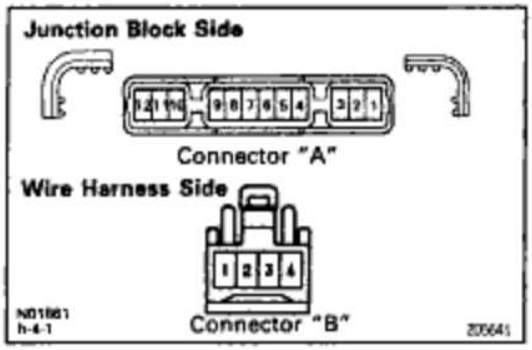
Inspect the relay continuity between terminals.

Condition	Tester connection to terminal number	Specified value
Constant	1–2	Continuity
Apply B + between terminals 1 and 2.	3–5	Continuity

If continuity is not as specified, replace the relay.

LIGHT FAILURE SENSOR

See page BE–73.



INTEGRATION RELAY INSPECTION

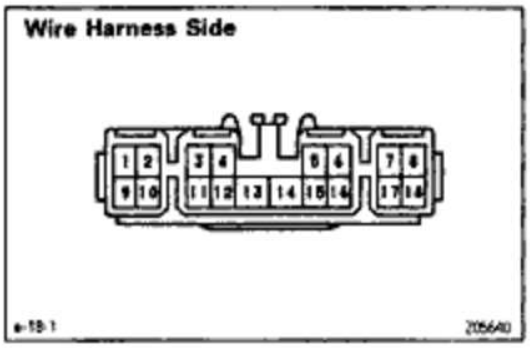
INSPECT INTEGRATION RELAY

Relay Circuit/ Light Auto Turn Off System

Remove the relay from junction block and inspect the connectors on the wire harness and junction block side, as shown in the chart.

Tester connection to terminal number	Condition	Specified value (Continuity)
A6 – Ground	Driver's door courtesy switch OFF	No continuity
A6 – Ground	Driver's door courtesy switch ON	Continuity
A10 – Ground	Constant	Continuity
B1 – Ground	Light control switch position OFF	No continuity
B1 – Ground	Light control switch position TAIL and HEAD	Continuity
B4 – Ground	Light control switch position OFF or TAIL	No continuity
B4 – Ground	Light control switch position HEAD	Continuity
Tester connection to terminal number	Condition	Specified value (Voltage)
A1 – Ground	Constant	Battery positive voltage
A7 – Ground	Ignition switch position LOCK or ACC	No voltage
A7 – Ground	Ignition switch position ON	Battery positive voltage
B2 – Ground	Constant	Battery positive voltage
B3 – Ground	Constant	Battery positive voltage

If the circuit is as specified, trying replacing the relay with a new one.
If the circuit is not as specified, inspect the circuits connected to other parts.



DAYTIME RUNNING LIGHT RELAY (MAIN) INSPECTION (for CANADA)

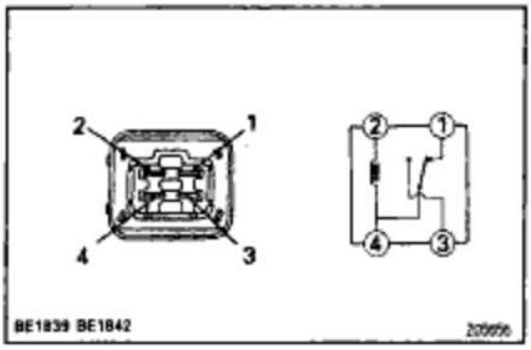
INSPECT DAYTIME RUNNING LIGHT RELAY (MAIN)

Circuit/ Wire Harness Side

Disconnect the connector from relay and inspect the connector on wire harness side, as shown.

Tester connection to terminal number	Condition	Specified value (Continuity)
5 – Ground	Light control switch position OFF or TAIL	No continuity
5 – Ground	Light control switch position HEAD	Continuity
5 – Ground	Headlight dimmer switch position Low beam or high beam	No continuity
5 – Ground	Headlight dimmer switch position Flash	Continuity
8 – Ground	Parking brake switch position OFF	No continuity
8 – Ground	Parking brake switch position ON	Continuity
13 – Ground	Constant	Continuity
16 – Ground	Headlight dimmer switch position Low beam	No continuity
16 – Ground	Headlight dimmer switch position Flash or High beam	Continuity
Tester connection to terminal number	Condition	Specified value (Voltage)
2 – Ground 18 – Ground	Ignition switch position LOCK or ACC	No voltage
2 – Ground 18 – Ground	Ignition switch position ON or START	Battery positive voltage
4 – Ground 15 – Ground 17 – Ground	Constant	Battery positive voltage
11 – Ground	Engine Stop	No voltage
11 – Ground	Engine Running	Battery positive voltage

If circuit is as specified, perform the inspection on the following page.
If circuit is not as specified, inspect the circuits connected to other parts.



DAYTIME RUNNING LIGHT RELAY NO.2 INSPECTION (for CANADA)

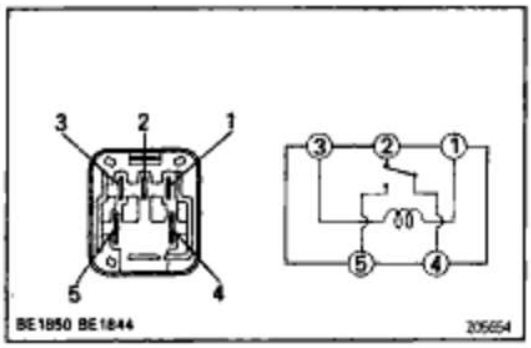
INSPECT DAYTIME RUNNING LIGHT RELAY NO.2

Continuity

Inspect the relay continuity between terminals.

Condition	Tester connection to terminal number	Specified value
Constant	1–4 2–4	Continuity
Apply B + between terminals 2 and 4.	3–4	Continuity

If continuity is not as specified, replace the relay.



DAYTIME RUNNING LIGHT RELAY NO–3 INSPECTION (for CANADA)

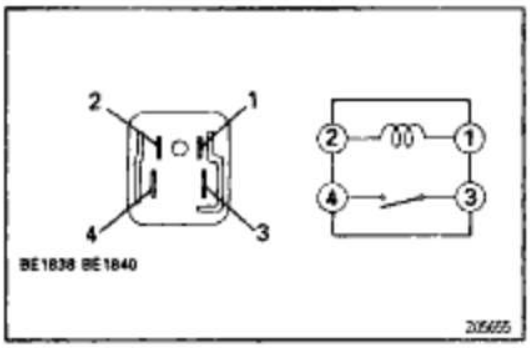
INSPECT DAYTIME RUNNING LIGHT RELAY NO–3

Continuity

Inspect the relay continuity between terminals.

Condition	Tester connection to terminal number	Specified value
Constant	1–3 2–4	Continuity
Apply B + between terminals 1 and 3.	4–5	Continuity

If continuity is not as specified, replace the relay.



DAYTIME RUNNING LIGHT RELAY NO.4 INSPECTION

INSPECT DAYTIME RUNNING LIGHT RELAY NO.4

Continuity

Condition	Tester connection to terminal number	Specified value
Constant	1–2	Continuity
Apply B + between terminals 1 and 2.	3–4	Continuity

If continuity is not as specified, replace the relay.

DOOR COURTESY SWITCH

See page BE–43.

PARKING BRAKE SWITCH

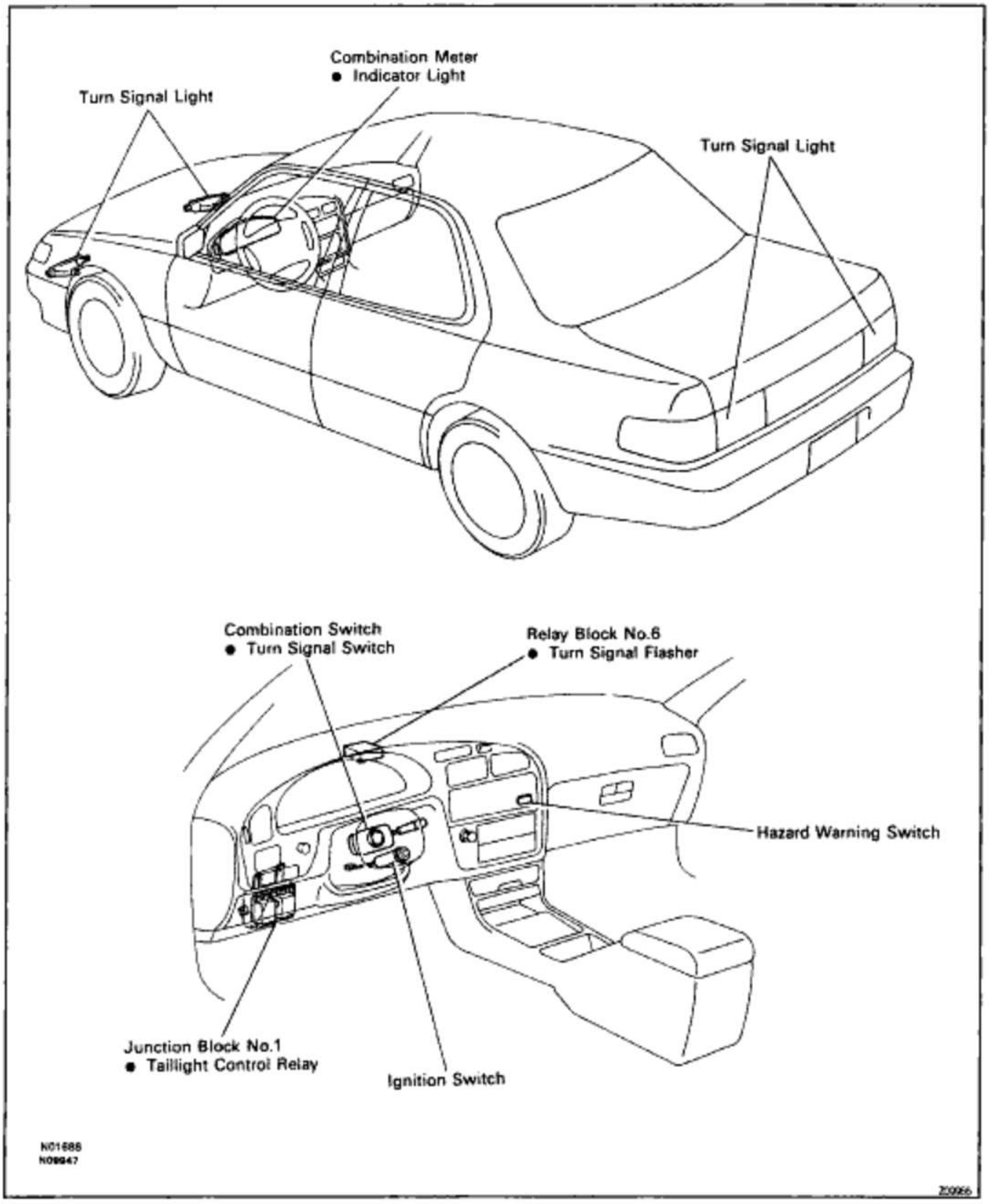
See page BE–72.

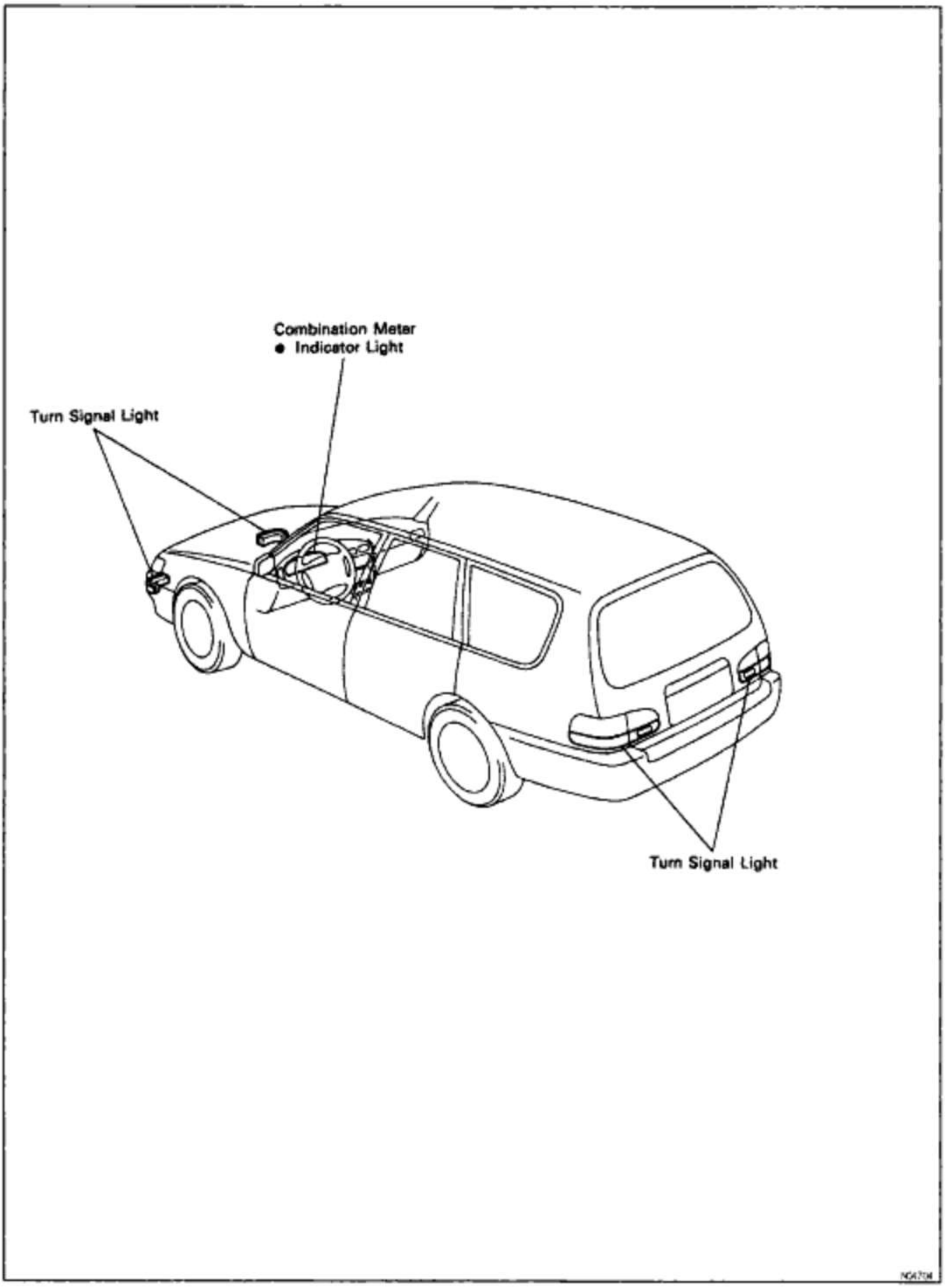
IGNITION SWITCH

See page BE–14.

TURN SIGNAL AND HAZARD WARNING SYSTEM

PARTS LOCATION




Combination Meter
● Indicator Light
Turn Signal Light
Turn Signal Light
NSA704

TROUBLESHOOTING

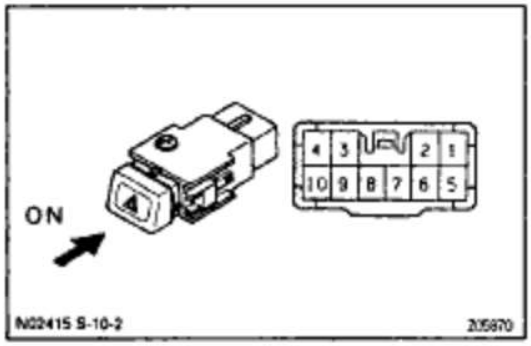
The table below will be useful for you in troubleshooting these electrical problems. The most likely causes of the malfunction are shown in the order of their probability. Inspect each part in the order shown, and replace the part when it is found to be faulty.

Trouble	Parts name	(See page)
'Hazard' and "Turn" do not light up.	1. Hazard Warning Switch 2. Turn Signal Flasher 3. Wire Harness	(BE–38) (BE–38)
The flashing frequency is abnormal.	1. Bulb 2. Turn Signal Switch 3. Wire Harness	(BE–38)
Hazard warning light does not light up. (Turn is normal)	1. HAZ–HORN Fuse 2. Wire Harness	(BE–4)
Hazard warning light does not light up in one direction.	1. Hazard Warning Switch Z. Wire Harness	(BE–38)
*1 Turn signal does not light up.	1. Ignition Switch 2. TURN Fuse 3. Turn Signal Switch 4. Wire Harness	(BE–14) (BE–4) (BE–38)
*2 Turn signal does not light up.	1. TURN Fuse 2. Turn Signal Switch 3. Wire Harness	(BE–4) (BE–38)
Turn signal does not light up in one direction.	1. Turn Signal Switch 2. Wire Harness	(BE–38)
Only one bulb does not light up.	1. Bulb 2. Wire Harness	

*1: Combination Meter, Wiper and Washer do not operate.
*2: Combination Meter, Wiper and Washer are normal.

TURN SIGNAL SWITCH

See page BE–29.



HAZARD WARNING SWITCH INSPECTION

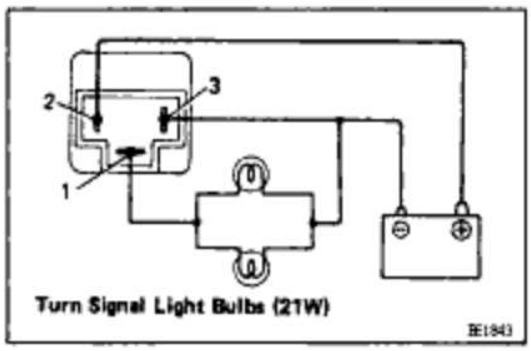
INSPECT HAZARD WARNING SWITCH

Continuity

Inspect the switch continuity between terminals.

Condition	Tester connection to terminal number	Specified value
Switch OFF	7–10	Continuity
Switch ON	7–8 5–6–9	Continuity
Illumination circuit	2–3	Continuity

If continuity is not as specified, replace the switch.



TURN SIGNAL FLASHER INSPECTION

INSPECT TURN SIGNAL FLASHER

Operation

(a) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 3.
(b) Connect the 2 turn signal light bulbs parallel to each other to terminals 1 and 3, check that the bulbs flash.

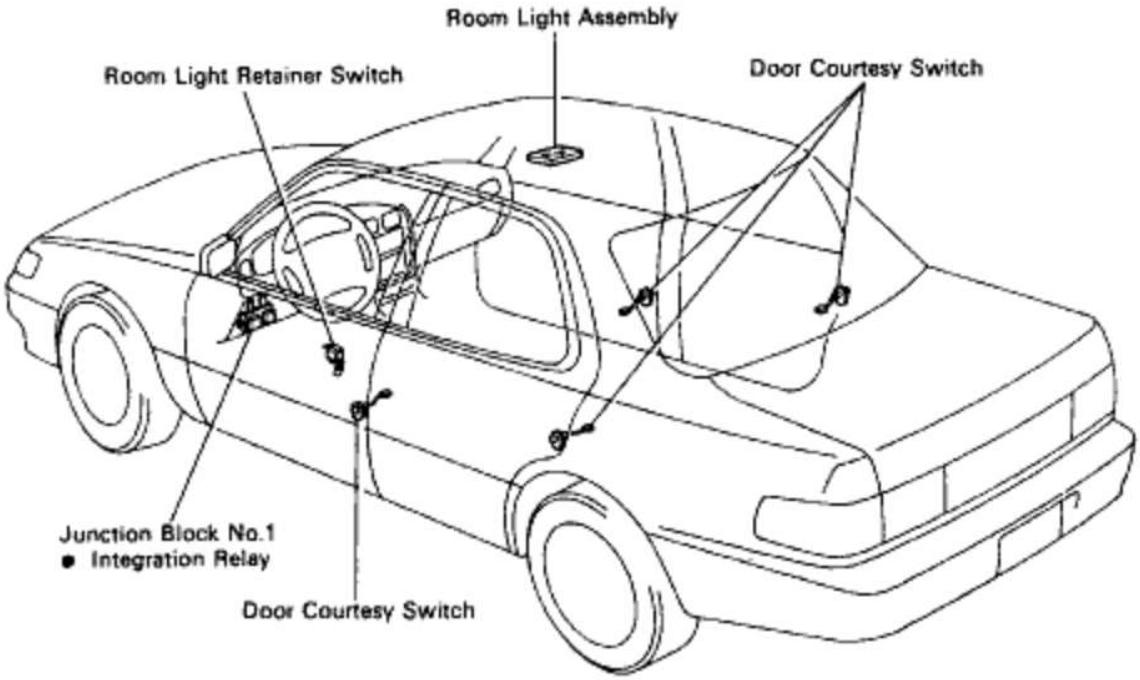
HINT: The turn signal lights should flash 60 or 120 times per minute.

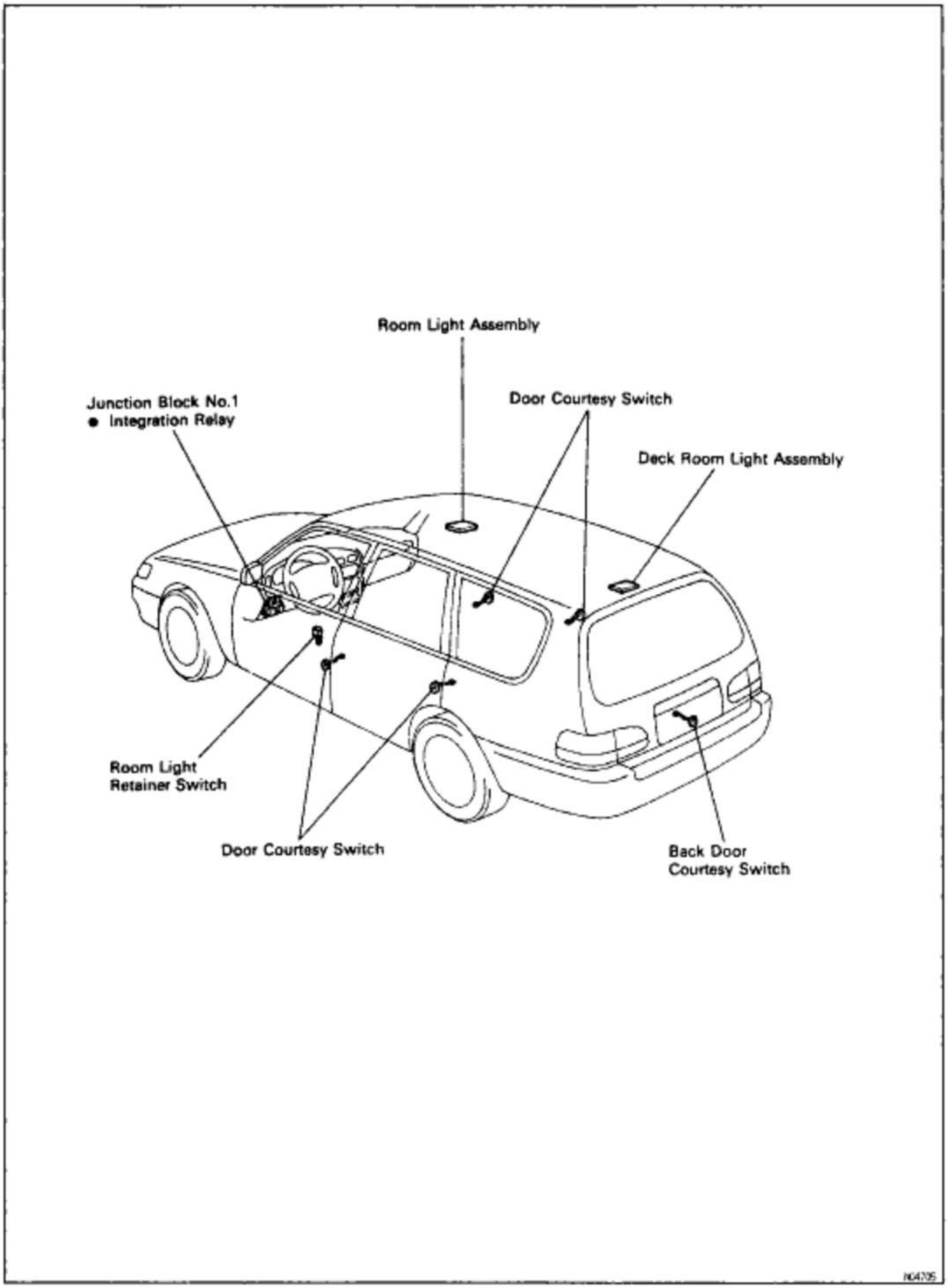
If one of the front or rear turn signal lights has an open circuit, the number of flashers will be more than 140 per minute.

If operation is not as specified, replace the flasher.

INTERIOR LIGHT SYSTEM

PARTS LOCATION

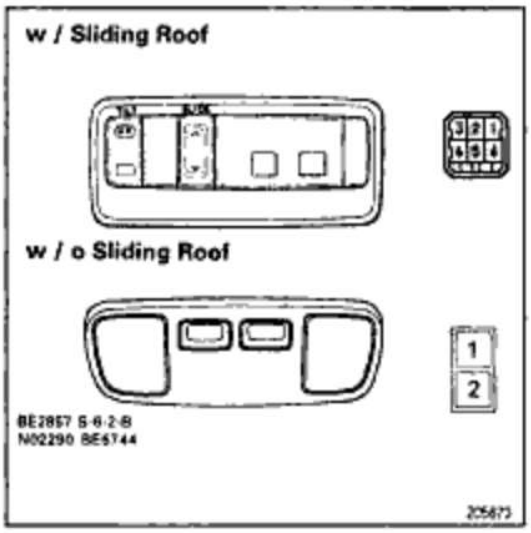



Room Light Assembly
Junction Block No.1
● Integration Relay
Door Courtesy Switch
Deck Room Light Assembly
Room Light
Retainer Switch
Door Courtesy Switch
Back Door
Courtesy Switch
I04705

TROUBLESHOOTING

The table below will be useful for you in troubleshooting these electrical problems. The most likely causes of the malfunction are shown in the order of their probability. Inspect each part in the order shown, and replace the part when it is found to be faulty.

Trouble	Parts name	(See page)
Only one interior light does not light up.	1. Bulb 2. Wire Harness	
Interior light does not light up (All).	1. DOME Fuse 2. Wire Harness	(BE–4)
"Illuminated Entry System" does not operate.	1. Integration Relay 2. Door Open Detection Switch 3. Door Outside Handle Switch 4. Door Courtesy Switch 5. Wire Harness	(BE–42) (BE–93) (BE–43) (BE–43)
Interior light does not light up.	1. Bulb 2. Interior Light 3. Wire Harness	(BE–43)
Front personal light does not light up.	1. Bulb 2. Personal Light 3. Wire Harness	(BE–42)
Luggage compartment light does not light up.	1. Bulb 2. Back Door Courtesy Switch 3. Wire Harness	(BE–44)
Courtesy light does not light up.	1. Bulb 2. Door Open Detection Switch 3. Wire Harness	(BE–94)



PERSONAL LIGHT INSPECTION

INSPECT PERSONAL LIGHT SWITCH

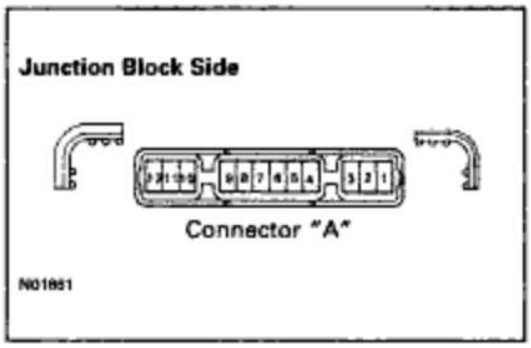
Continuity

Inspect the light switch continuity between terminals.

Switch position	Tester connection to terminal number	Specified value
OFF	–	No continuity
ON	1–2 1 –(4)	Continuity

The number in bracket ( ) applies to vehicles with Sliding Roof System.

If continuity is not as specified, replace the light as–sembly or bulb.



INTEGRATION RELAY INSPECTION

INSPECT INTEGRATION RELAY

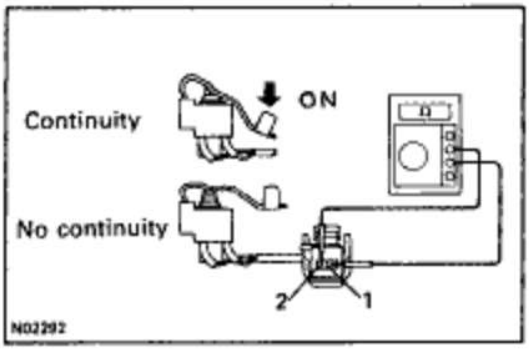
Relay Circuit/ Illuminated Entry System

Remove the relay from junction block and inspect the connector on the junction block side, as shown in the chart.

Tester connection to terminal number	Condition	Specified value (Continuity)
A3 – Ground	Door Outside Handle Switch Position OFF	No continuity
A3 – Ground	Door Outside Handle Switch Position ON	Continuity
A4 – Ground	Courtesy Switch Position OFF (except driver's side)	No continuity
A4 – Ground	Courtesy Switch Position ON (except driver's side)	Continuity
A10 – Ground	Constant	Continuity
Tester connection to terminal number	Condition	Specified value (Voltage)
A1 – Ground	Constant	Battery positive voltage
A2 – Ground	Constant	Battery positive voltage

If circuit is as specified, trying replacing the relay with a new one.

If the circuit is not as specified, inspect the circuits connected to other parts.



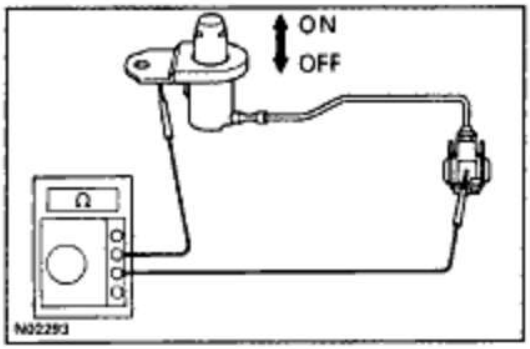
DOOR OUTSIDE HANDLE SWITCH INSPECTION

INSPECT DOOR OUTSIDE HANDLE SWITCH

(a) Check that there is continuity between terminals 1 and 2 when door outside handle is pulled.

(b) Check that there is no continuity between terminals 1 and 2 when door outside handle is released.

If operation is not as specified, replace the switch.



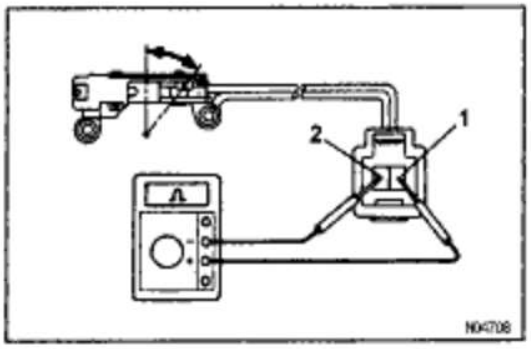
DOOR COURTESY SWITCH INSPECTION

INSPECT DOOR COURTESY SWITCH

(a) Check that there is continuity between terminal and switch body with the switch ON (switch pin released).

(b) Check that there is no continuity between terminal and switch body with the switch OFF (switch pin pushed).

If continuity is not as specified, replace the switch.



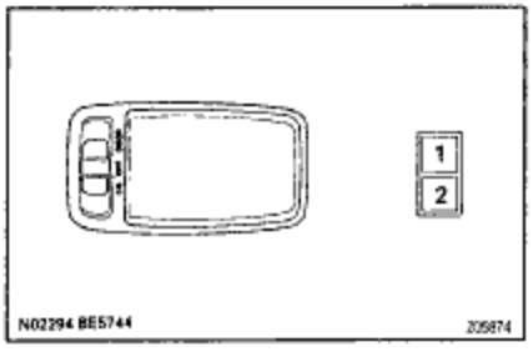
BACK DOOR COURTESY SWITCH INSPECTION

INSPECT BACK DOOR COURTESY SWITCH

(a) Check that there is continuity between terminal 1 and 2 with the switch ON (switch pin released).

(b) Check that there is no continuity between terminal 1 and 2 with the switch OFF (switch pin pushed).

If continuity is not as specified, replace the switch.



INTERIOR LIGHT SWITCH AND DECK ROOM LIGHT SWITCH INSPECTION

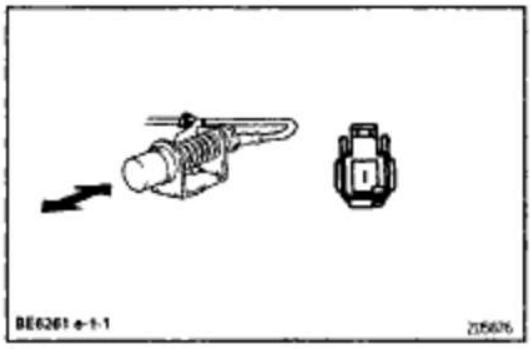
INSPECT INTERIOR LIGHT SWITCH AND DECK ROOM LIGHT SWITCH

Continuity

Inspect the light switch continuity between terminals.

Switch position	Tester connection to terminal number	Specified value
DOOR	2 – Switch body	Continuity
OFF	–	No continuity
ON	1–2	Continuity

If continuity is not as specified, replace the light assembly or bulb.



LUGGAGE DOOR COURTESY SWITCH INSPECTION

INSPECT LUGGAGE DOOR COURTESY SWITCH

Continuity

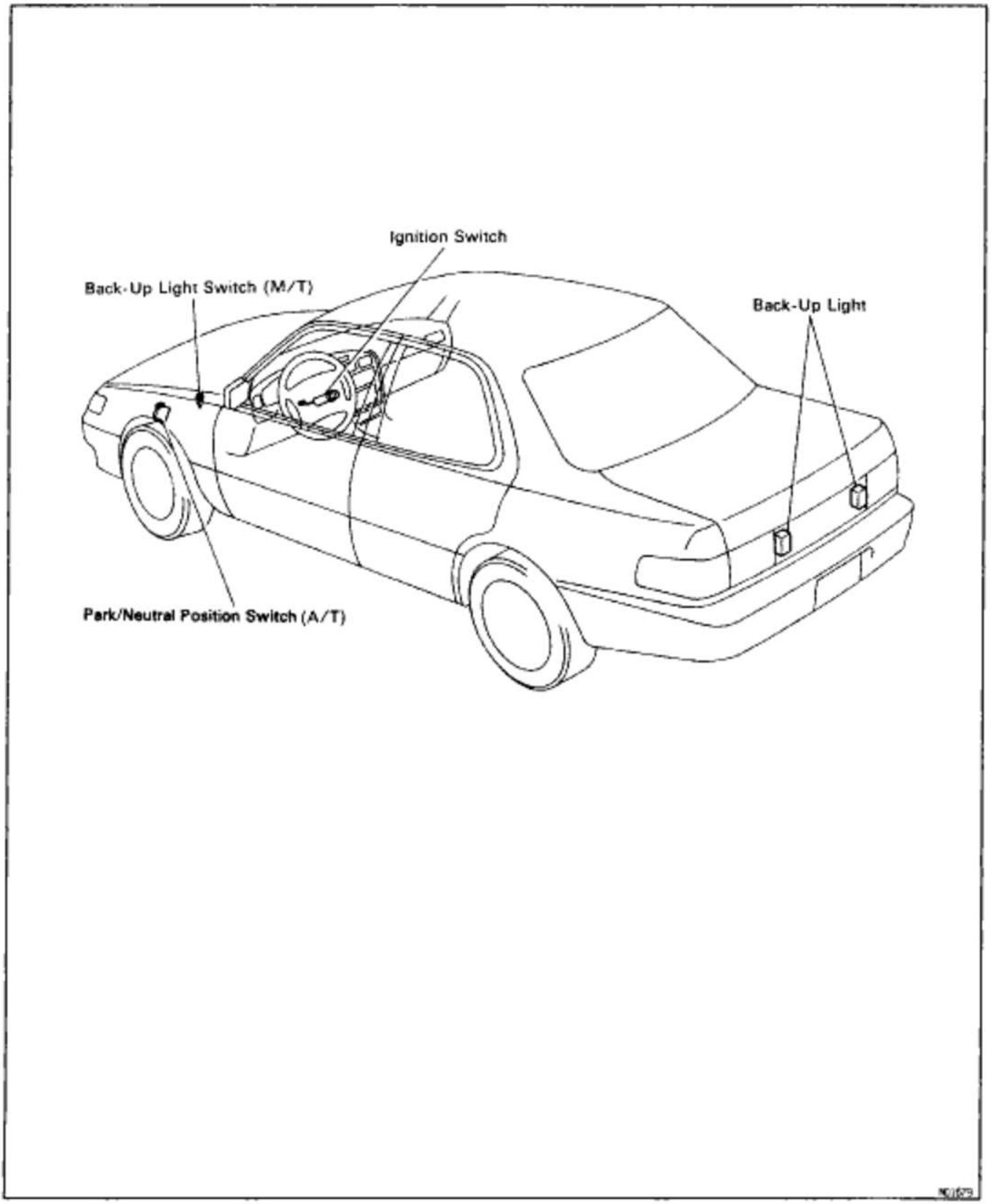
Inspect the switch continuity between terminal and switch body.

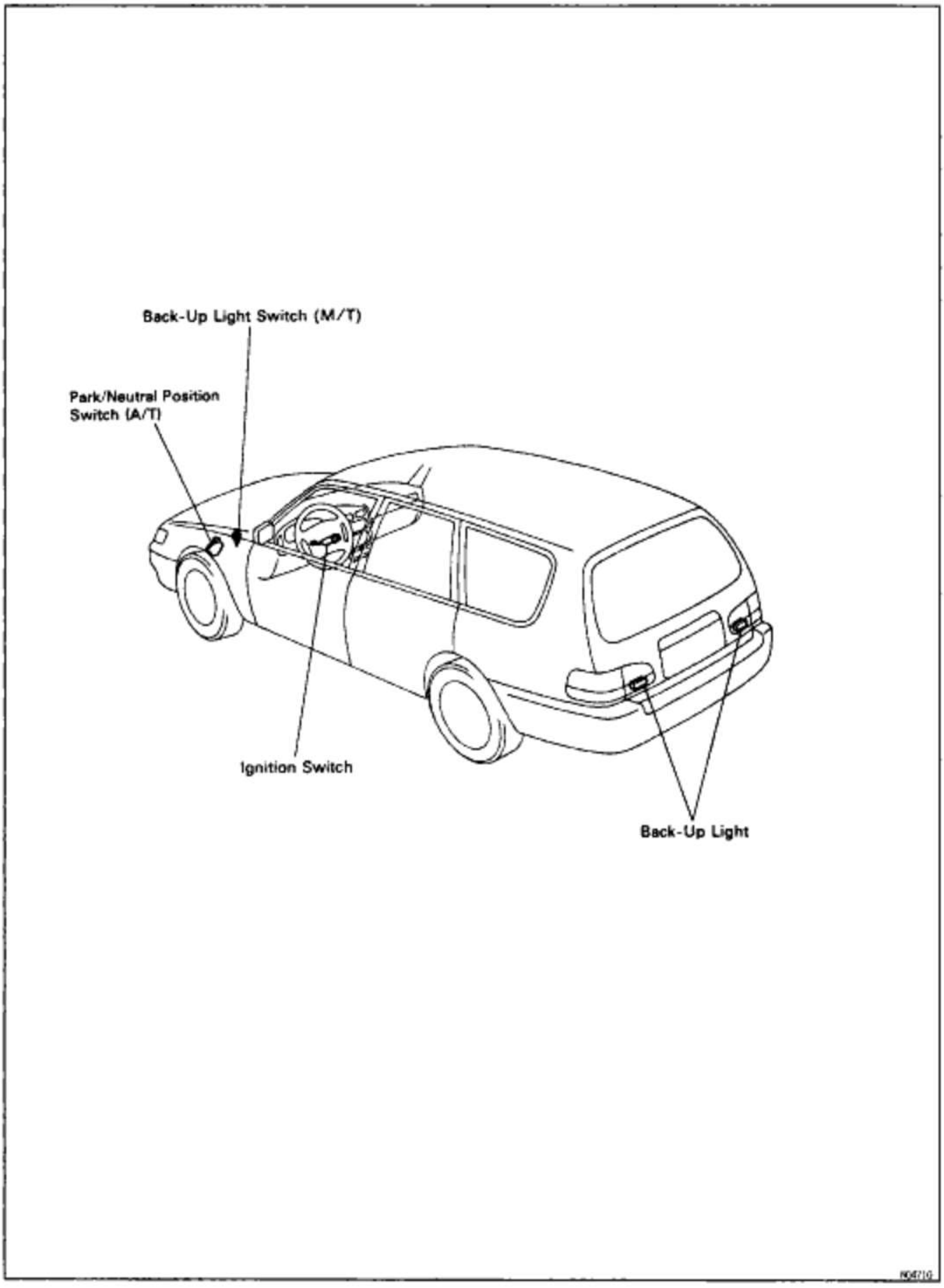
Condition	Tester connection to terminal number	Specified value
Switch OFF	–	No continuity
Switch ON	1 – Switch body	Continuity

If operation is not as specified, replace the switch.

BACK–UP LIGHT SYSTEM

PARTS LOCATION

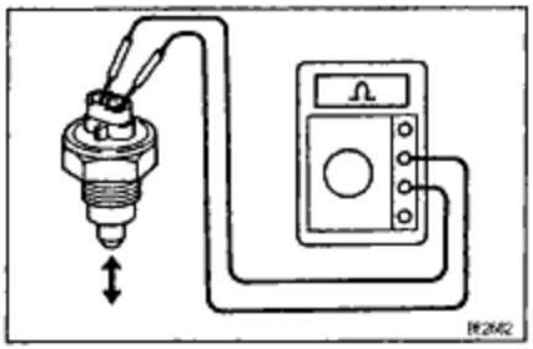



Back-Up Light Switch (M/T)
Park/Neutral Position Switch (A/T)
Ignition Switch
Back-Up Light

TROUBLESHOOTING

The table below will be useful for you in troubleshooting these electrical problems. The most likely causes of the malfunction are shown in the order of their probability. Inspect each part in the order shown, and replace the part when it is found to be faulty.

Trouble	Parts name (See page)
Back–Up Light does not light up.	1. GAUGE Fuse (BE–4) 2. Ignition Switch (BE–14) 3. Wire Harness 4. Bulb
Back–Up Light remains always on.	1. Back–Up Light Switch (M/T) (BE–47) 2. Park/ Neutral Position Switch (A/T) 5S–FE (AX1–92) 1 MZ–FE (AX2– 116) 3. Wire Harness
Only one light does not light up.	1. Wire Harness 2. Bulb



BACK–UP LIGHT SWITCH INSPECTION

INSPECT BACK–UP LIGHT SWITCH

Inspect the switch continuity between terminals.

Switch position	Tester connection	Specified value
Free	–	No continuity
Push	1 – 2	Continuity

If continuity is not as specified, replace the switch.

PARK/ NEUTRAL POSITION SWITCH

(5S–FE Engine)

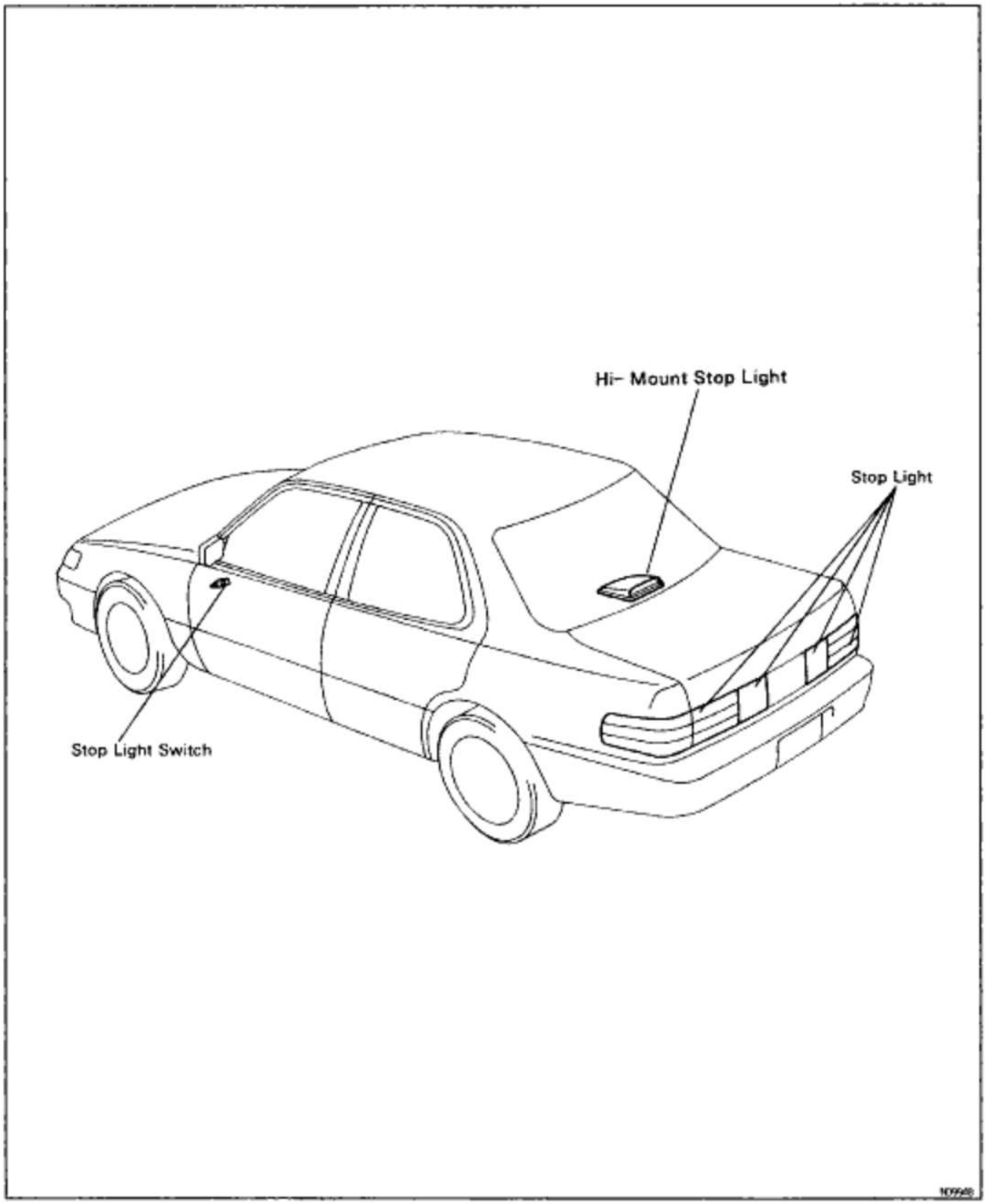
See page AX1–92.

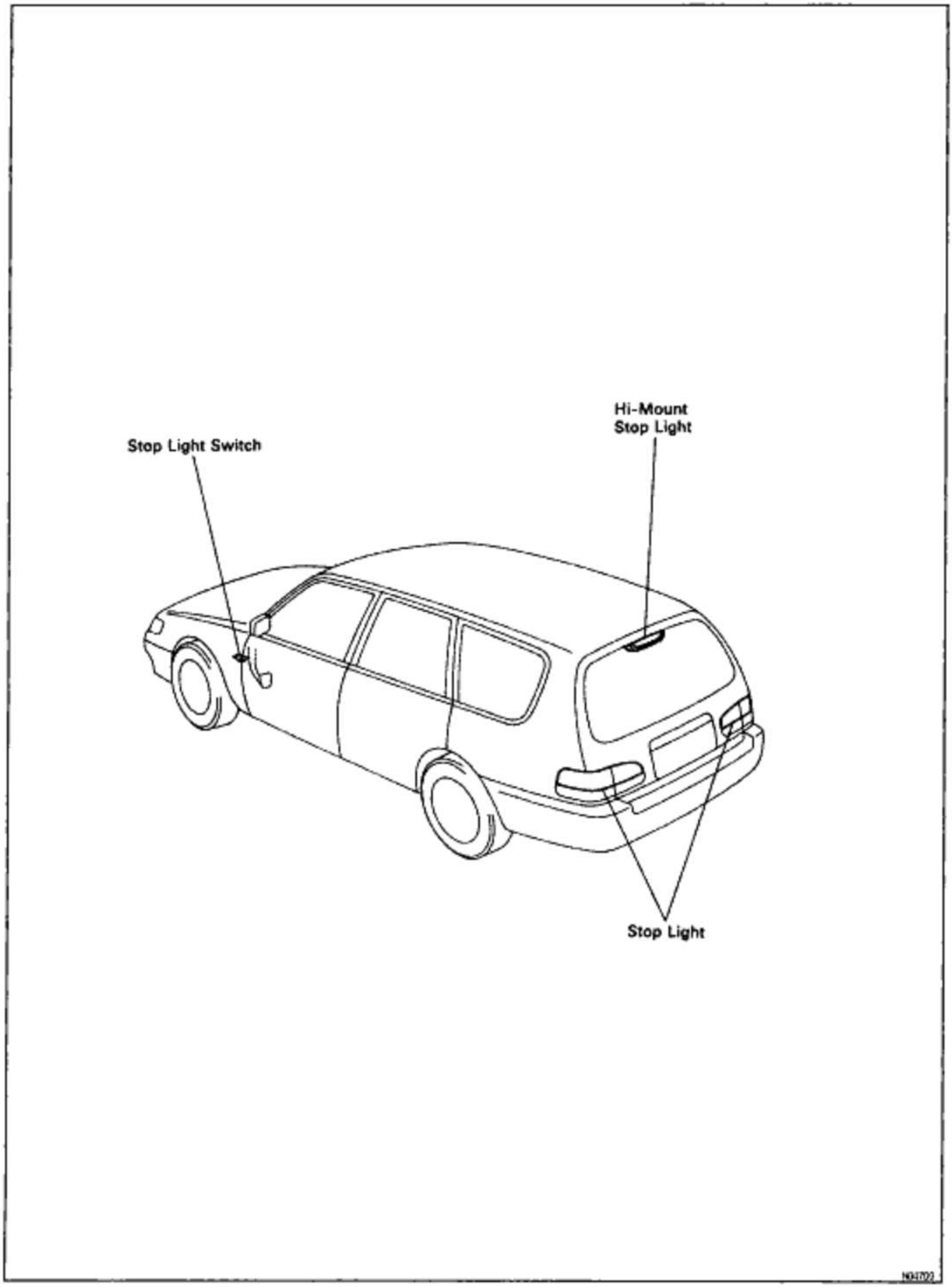
(IMZ–FE Engine)

See page AX2–116.

STOP LIGHT SYSTEM

PARTS LOCATION

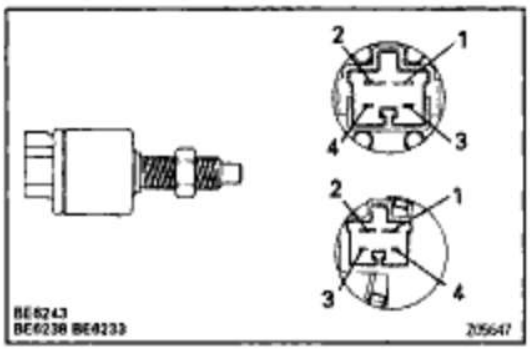



Hi-Mount
Stop Light
Stop Light Switch
Stop Light
N04702

TROUBLESHOOTING

The. table below will be useful for you in troubleshooting these electrical problems. The most likely causes of the malfunction are shown in the order of their probability. Inspect each part in the order shown, and replace the part when it is found to be faulty.

Trouble	Parts name	(See page)
Stop light does not light up.	1. STOP Fuse 2. Stop Light Switch 3. Wire Harness	(BE–4) (BE–50)
Only one light always lights up.	1. Wire Harness	
Only one light does not light.	1. Bulb 2. Wire Harness	



STOP LIGHT SWITCH INSPECTION

INSPECT STOP LIGHT SWITCH

Continuity

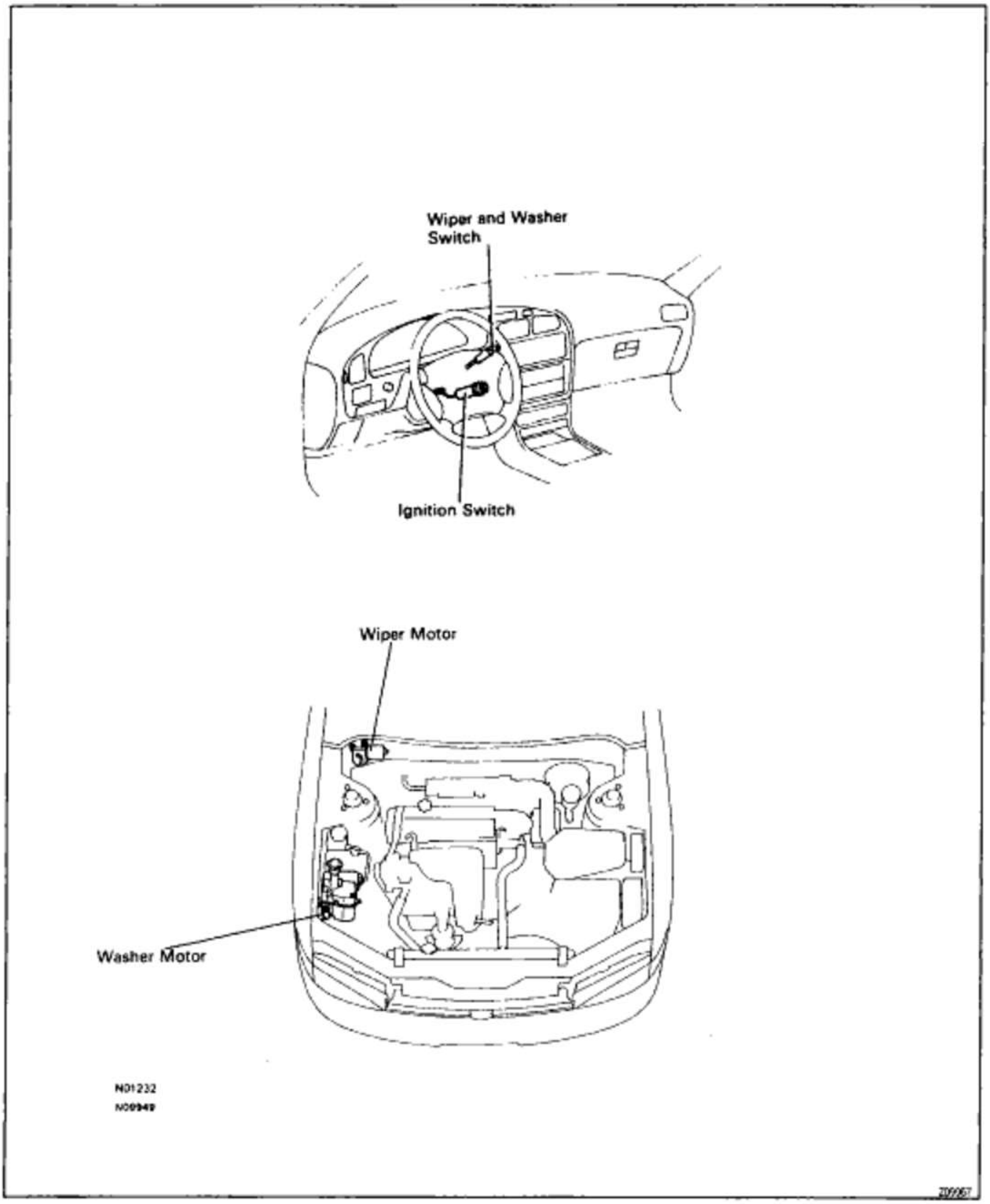
Inspect the switch continuity between terminals.

Switch position	Tester connection to terminal number	Specified value
Switch pin free	1–2	Continuity
Switch pin pushed in	3–4	Continuity

If continuity is not as specified, replace the switch.

WIPER AND WASHER SYSTEM

PARTS LOCATION



TROUBLESHOOTING

The table below will be useful for you in troubleshooting these electrical problems. The most likely causes of the malfunction are shown in the order of their probability. Inspect each part in the order shown, and replace the part when it is found to be faulty.

Trouble	Parts name	(See page)
Wiper and washers do not operate.	1. WIPER Fuse 2. Wiper Switch 3. Wiper Motor 4. Wire Harness	(BE–4) (BE–53) (BE–56)
Wipers do not operate in L0, HI or MIST.	1. Wiper Switch 2. Wiper Motor 3. Wire Harness	(BE–53) (BE–56)
Wipers do not operate in INT.	1. Wiper Switch 2. Wiper Motor 3. Wire Harness	(BE–53) (BE–56)
Washer motor does not operate.	1. Washer Switch 2. Washer Motor 3. Wire Harness	(BE–53) (BE–58)
Wipers do not operate when washer switch in ON.	1. Washer Motor 2. Wire Harness	(BE–58)
Washer fluid does not operate.	1. Washer Hose and Nozzle	
• At wiper switch HI position, the wiper blade is in contact with the body. • When the wiper switch is OFF, the wiper blade does not retract or the retract position wrong.	1. *1 Wiper Relay 2. Wire harness	(BE–54)

*1: Inspect wiper arm and blade set position

COMBINATION SWITCH REMOVAL

See page BO–108

COMBINATION SWITCH DISASSEMBLY

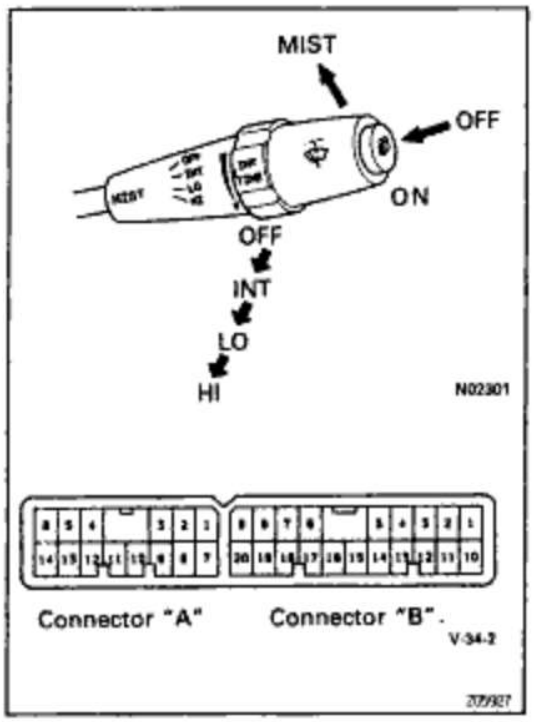
See page BE–25.

COMBINATION SWITCH ASSEMBLY

See page BE–27.

COMBINATION SWITCH INSTALLATION

See page BO–108.



COMBINATION SWITCH INSPECTION

INSPECT WIPER AND WASHER SWITCH

Continuity

Inspect the switch continuity between terminals.

WIPER OFF

Switch position	Tester connection to terminal number	Specified value
MIST OFF	B4–B7	Continuity
MIST ON	B4–B7 B16–B18	Continuity

WIPER INT

Switch position	Tester connection to terminal number	Specified value
MIST OFF	B4–B7 B14–B16	Continuity
MIST ON	B4–B7 B14–B16–B18	Continuity

WIPER LO

Switch position	Tester connection to terminal number	Specified value
MIST OFF	B7–B18	Continuity
MIST ON	B7–B18	Continuity

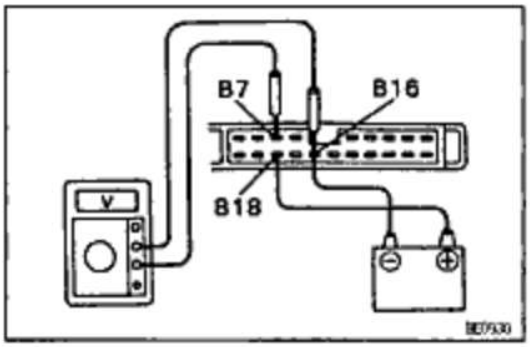
WIPER HI

Switch position	Tester connection to terminal number	Specified value
MIST OFF	B6 B16 B13–B18	Continuity
MIST ON	B6 B16 B13–B18	Continuity

WASHER

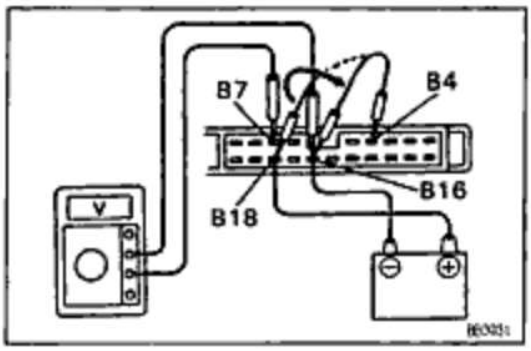
Switch position	Tester connection to terminal number	Specified value
OFF	–	No continuity
ON	B8–B16	Continuity
Condition	Tester connection to terminal number	Specified value
*1 Constant	B4 – B7 B16 – B18	Continuity
"Apply B+ between terminals 16 and 18.	B7–B18	Continuity

*': With wiper switch OFF or– INT, and MIST ON.
If continuity is not as specified, replace the switch.



Intermittent Wiper Operation

(a) Turn the wiper switch to INT position.
(b) Turn the intermittent time control switch to FAST position.
(c) Connect the positive (+) lead from the battery to terminal 13– 18 and the negative (–) lead to terminal B –16.
(d) Connect the positive (+) lead from the voltmeter to terminal B–7 and the negative (–) lead to terminal B –16, check that the meter needle indicates battery positive voltage.



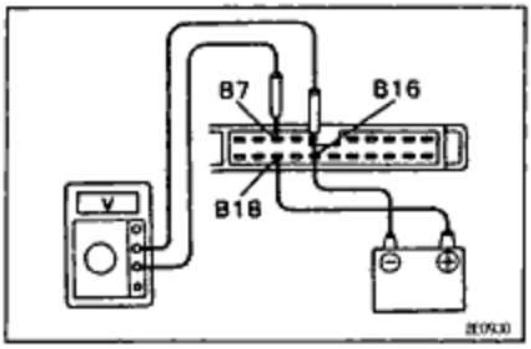
(e) After connecting terminal B–4 to terminal B–18, connect to terminal B–16.

Then, check that the voltage rises from 0 V to battery positive voltage within the times, as shown in the table.

If operation is not as specified, replace the switch.

I NT time control switch position	Voltage
FAST	Approx. 2 sec. Battery positive voltage / 0 V
SLOW	10.7 ± 5 sec. Battery positive voltage / 0 V
Non variable type	3.3 ± 1 sec. Battery positive voltage / 0 V

V04152

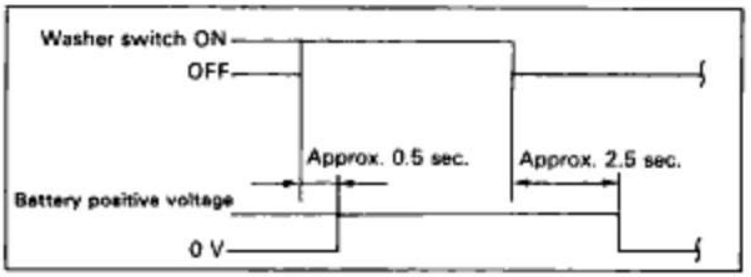


Washer Linked Operation

(a) Connect the positive (+) lead from the battery to terminal 13– 18 and the negative (–) lead to terminal B –16.

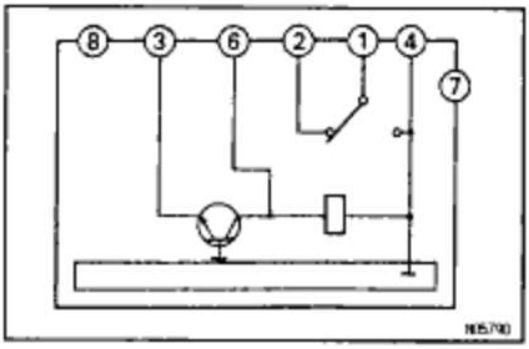
(b) Connect the positive (+) lead from the voltmeter to terminal B–7 and the negative (–) lead to terminal B –16.

(c) Push the washer switch, check that the voltage cha–nges, as shown in the table.

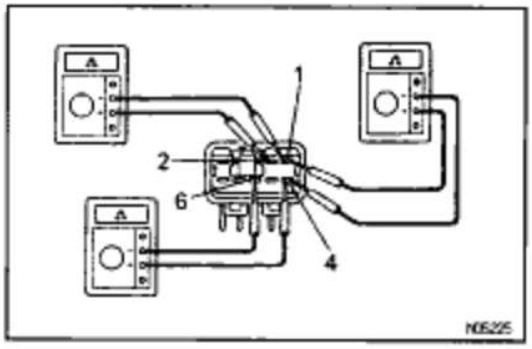


V04153

If operation is not as specified, replace the wiper and washer switch.



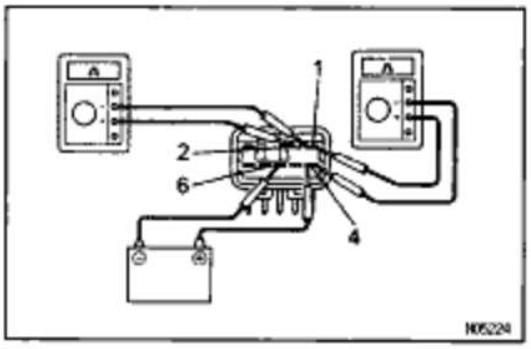
WIPER RELAY INSPECTION WAGON Only:



INSPECT REAR WIPER RELAY

Continuity

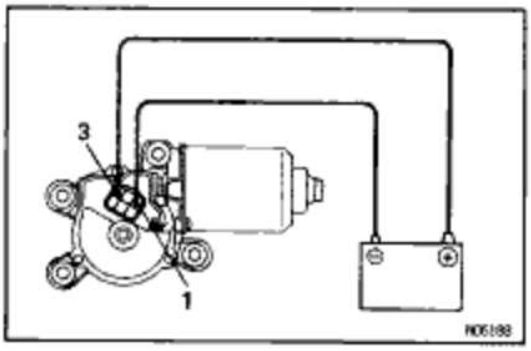
(a) Check that there is continuity between terminals 4 and 6.
(b) Check that there is continuity between terminals 1 and 2.
(c) Check that there is no continuity between terminals 1 and 4.
If continuity is not as specified, replace the relay.



Operation

(a) Apply battery positive voltage across terminals 4 and 6.
(b) Check that there is continuity between terminals 1 and 4.
(c) Check that there is no continuity between terminals 1 and 2.
If continuity is not as specified, replace the relay.

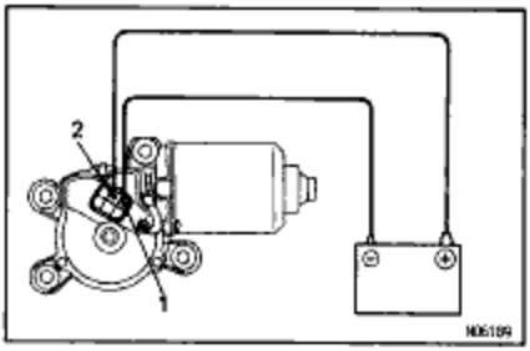
WIPER MOTOR INSPECTION



INSPECT MOTOR

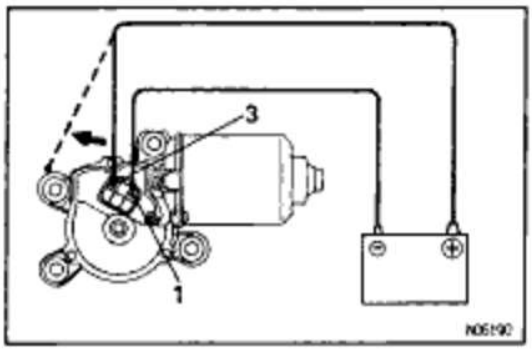
Operation at Low Speed

Connect the positive (+) lead from the battery to terminal 3 and the negative (–) lead to terminal 1, check that the motor operates at low speed.
If operation is not as specified, replace the motor.



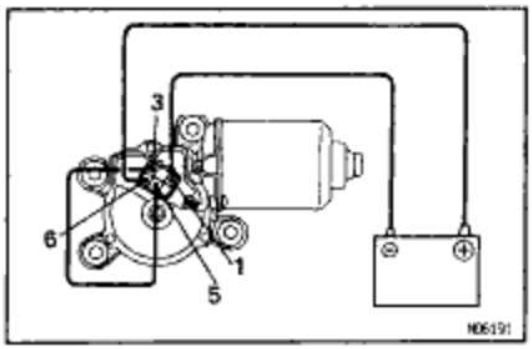
Operation at High Speed

Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1, check that the motor operates at high speed.
If operation is not as specified, replace the motor.



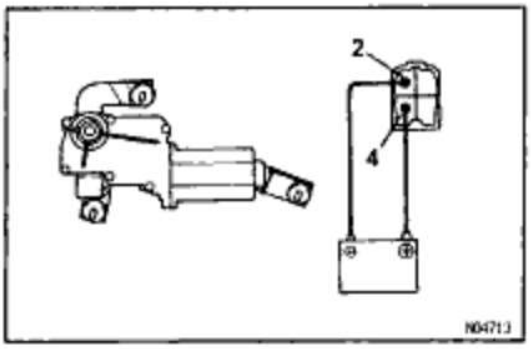
Operation, Stopping at Stop Position

(a) Operate the motor at low speed and stop the motor operation anywhere except at the stop position by disconnecting positive (+) lead from terminal 3.



(b) Connect terminals 3 and 5.

(c) Connect the positive (+) lead from the battery to terminal 6 and negative (–) lead to terminal 1, check that the motor stops running at the stop position after the motor operates again.
If operation is not as specified, replace the motor.

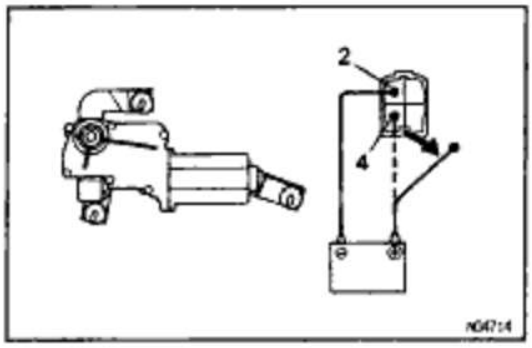


REAR WIPER MOTOR INSPECTION WAGON Only:

INSPECT MOTOR

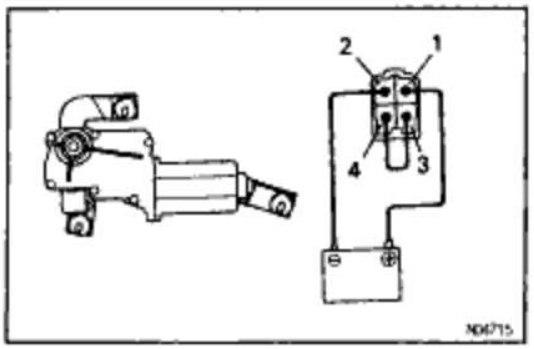
Operation at Low Speed

Connect the positive (+) lead from the battery to terminal 4 and the negative (–) lead to terminal 2, check that the motor operates at low speed.
If operation is not as specified, replace the motor.



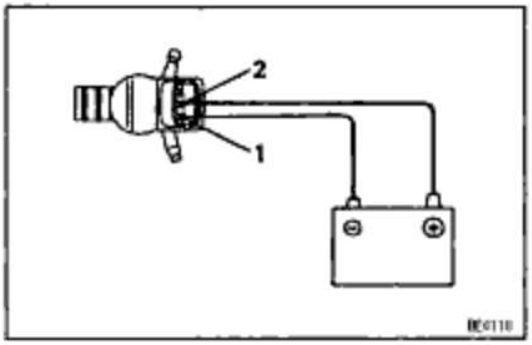
Operation, Stopping at Stop Position

(a) Operate the motor at low speed and stop the motor operation anywhere except at the stop position by disconnecting positive (+) lead from terminal 4.



(b) Connect terminals 3 and 4.

(c) Connect the positive (+) lead from the battery to terminal 1 and negative (–) lead to terminal 2, check that the motor stops running at the stop position after the motor operates again.
If operation is not as specified, replace the motor.



WASHER MOTOR INSPECTION (WAGON Only)

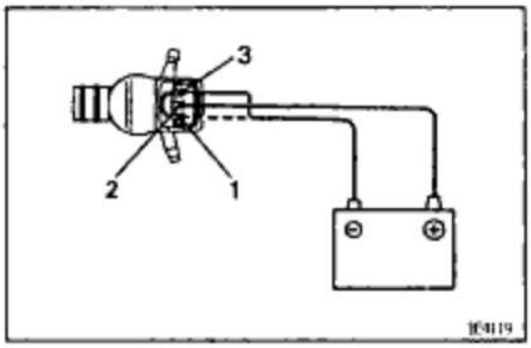
INSPECT WASHER MOTOR

Front Washer Operation

Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1, check that the motor operates.

NOTICE: These tests must be performed quickly (within 20 seconds) to prevent the coil from burning out.

If operation is not as specified, replace the motor.

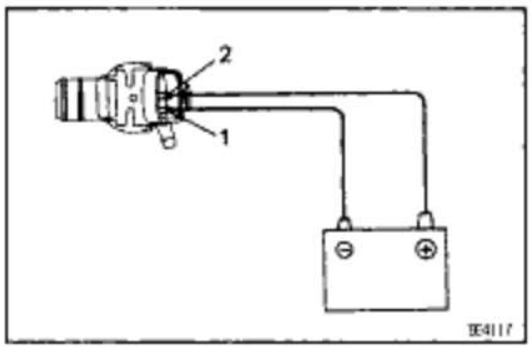


Rear Washer Operation

Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 3, check that the motor operates.

NOTICE: These tests must be performed quickly (within 20 seconds) to prevent the coil from burning out.

If operation is not as specified, replace the motor.



(Ex. WAGON)

INSPECT WASHER MOTOR

Operation

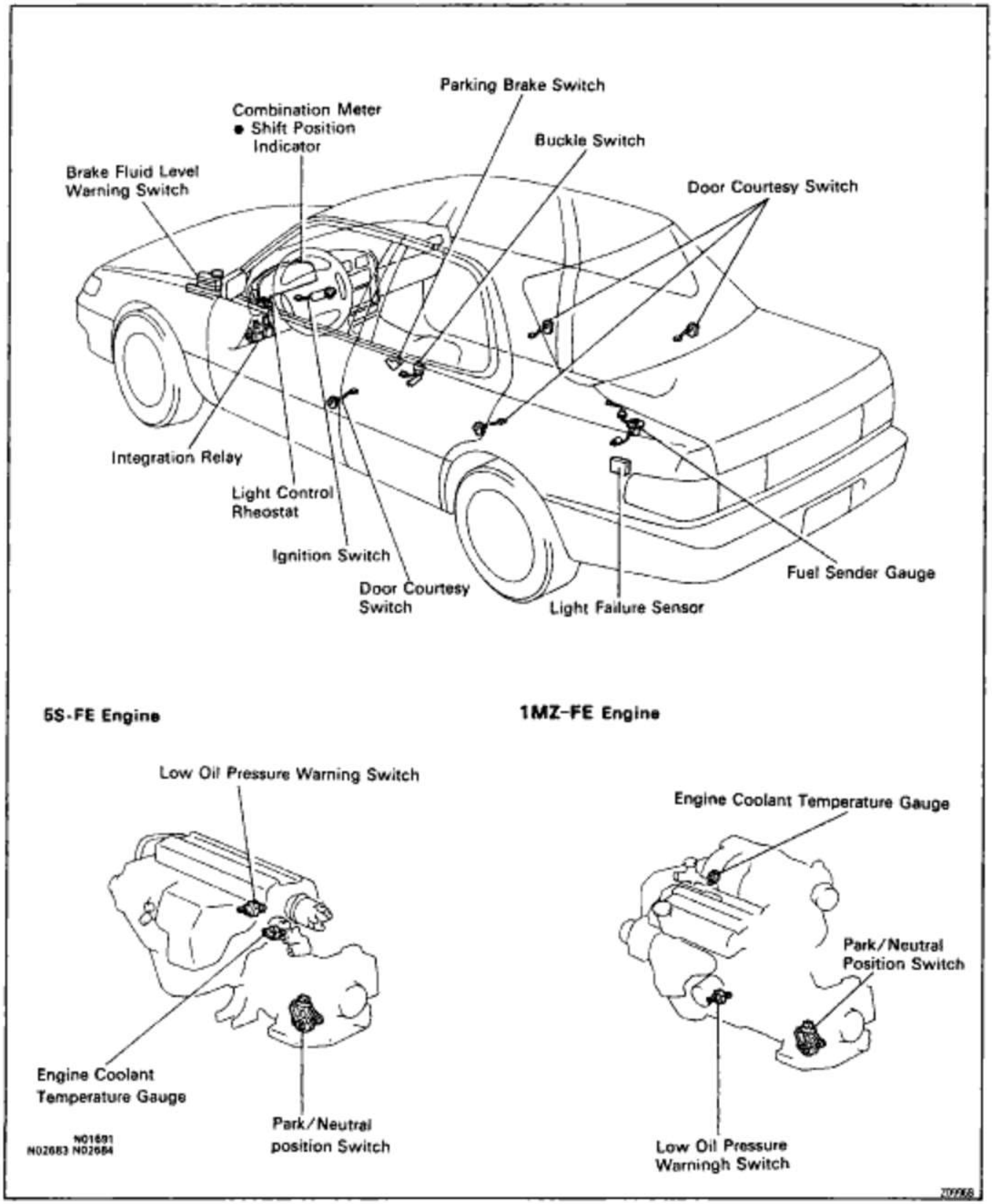
Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1, check that the motor operates.

NOTICE: There tests must be performed quickly (within 20 seconds) to prevent the coil from burning out.

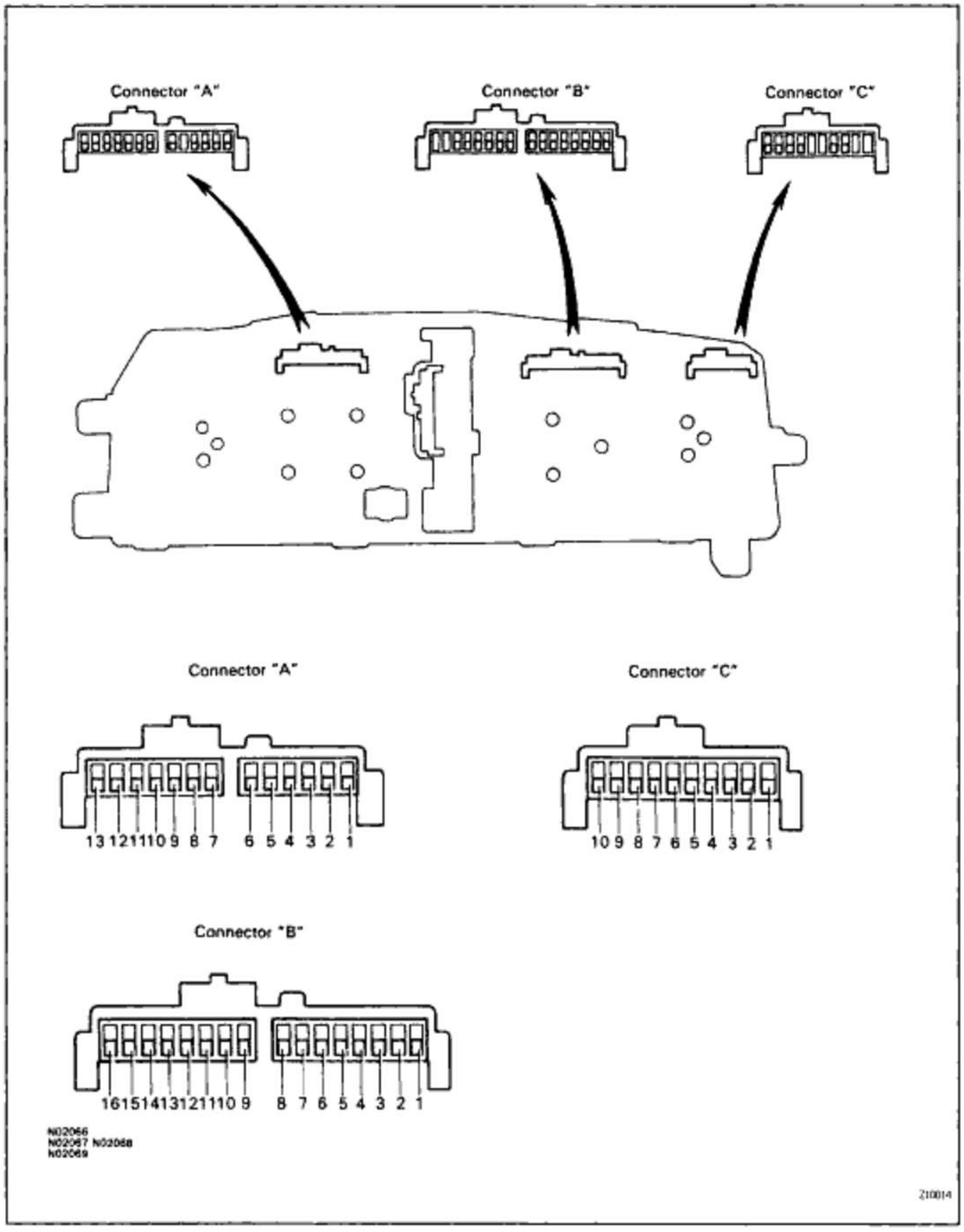
If operation is not as specified, replace the motor.

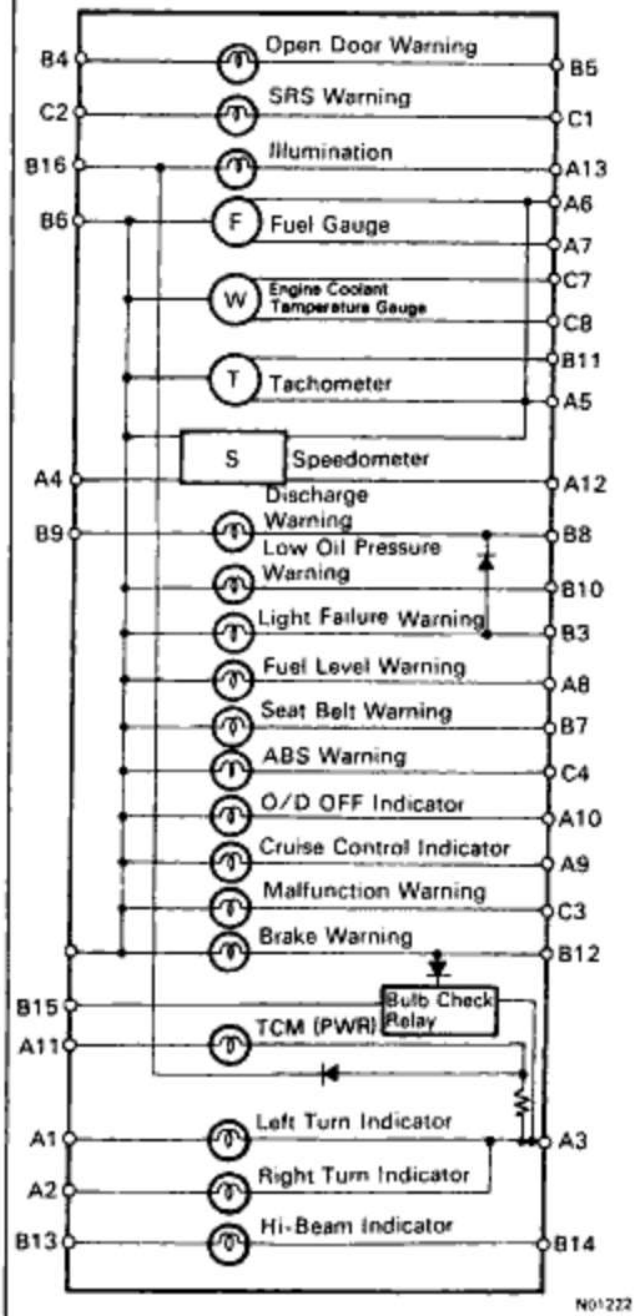
COMBINATION METER

PARTS LOCATION



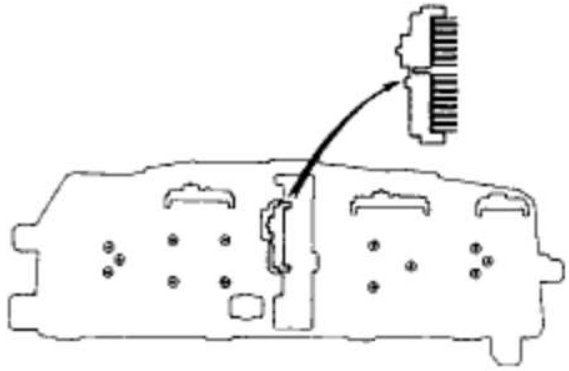
WIRING DIAGRAM

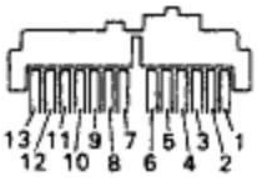


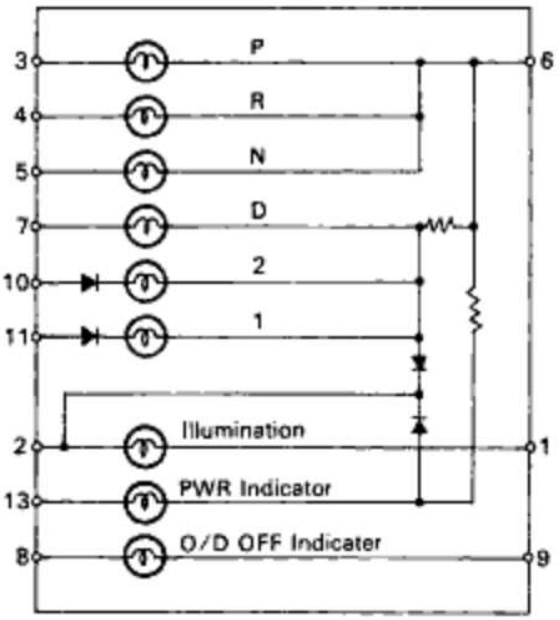


No.		Wiring Connector Side
A	1	Headlight dimmer and turn signal switch
	2	Headlight dimmer and turn signal switch
	3	Ground
	4	ECM
	5	Ground
	6	Ground
	7	Fuel sender gauge–terminal 2
	8	Fuel sender gauge–terminal 3
	9	Cruise Control ECU
	10	0/D OFF Switch
	11	Electronic Controlled Transaxle (PWR)
	12	Speed sensor
	13	Light control rheostat
B	3	Light failure sensor
	4	DOME fuse
	5	Door courtesy switch
	fi	GAUGE fuse
	7	Integration relay
	8	Generator
	9	IG2 fuse
	10	Oil pressure switch
	11	Igniter
	12	Parking brake switch and brake fluid
	13	level warning switch
	14	Headlight dimmer switch
	15	Headlight dimmer switch
	16	Starter relay
		TAIL fuse
C	1	Center Airbag Sensor Assembly
	2	ECU–13 fuse
	3	ECM
	4	ABS ECU
	7	Engine coolant temperature sender gauge
	8	Ground

A/T SHIFT POSITION INDICATOR







N01227 N01220
N01225

No.	Wiring Connector Side
1	Light control rheostat
2	TAIL fuse
3	Park/Neutral Position switch
4	Park/Neutral Position switch
5	Park/Neutral Position switch
6	Ground
7	Park/Neutral Position switch
8	GAUGE fuse
9	0/D switch
10	Park/Neutral Position switch
11	Park/Neutral Position switch
13	Electronic Controlled Transaxle select switch (PWR)

209970

TROUBLESHOOTING

The table below will be useful for you in troubleshooting these electrical problems. The most likely causes of the malfunction are shown in the order of their probability. Inspect each part in the order shown, and replace the part when it is found to be faulty.

METER, GAUGES AND ILLUMINATION

Trouble	Parts name (See page)
Tachometer, Voltmeter, Fuel Gauge and Engine Coolant Temperature Gauge do not operate.	1. GAUGE Fuse (BE–4) 2. Combination Meter Wiring Circuit (BE–61) 3. Wire Harness 4. Meter Circuit Plate (BE–60)
Speedometer does not operate.	1. No. 1 vehicle speed Sensor (BE–67) 2. Speedometer Driven Gear and Drive Gear
Tachometer does not operate.	1. Combination Meter Wiring Circuit (BE–61) 2. Wire Harness 3. Igniter 5S–FE (IG–12, 31) 1 MZ–FE (IG–49) 4. Meter Circuit Plate (BE–60)
Fuel Gauge does not operate or abnormal operation.	1. Fuel Receiver Gauge (BE–68) 2. Fuel Sender Gauge (BE–69) 3. Combination Meter Wiring Circuit (BE–61) 4. Wire Harness
Engine Coolant Temperature Gauge does not operate or abnormal operation.	1. Engine Coolant Temperature Receiver Gauge (BE–70) 2. Engine Coolant Temperature Sender Gauge (BE–70) 3. Combination Meter Wiring Circuit (BE–61) 4. Wire Harness
All illumination lights do not light up.	1. TAIL Fuse (BE–4) 2. Light Control Rheostat (BE–77) 3. Wire Harness
Brightness does not change even when rheostat turned.	1. Bulb 2. Wire Harness
Only one illumination light does not light up.	1. Bulb 2. Wire Harness

WARNING LIGHTS

Trouble	Parts name	(See page)
Warning light do not fight up. (Except. Discharge)	1. GAUGE Fuse 2. Combination Meter Wiring Circuit 3. Wire Harness	(BE–4) (BE–61)
Low Oil Pressure warning light does not light up.	1. Bulb 2. Combination Meter Wiring Circuit 3. Low Oil Pressure Warning Switch 4. Wire Harness	 (BE–61) (BE–71)
Fuel Level warning light does no light up.	1. Bulb 2. Combination Meter Wiring Circuit 3. Fuel Level Warning Switch	 (BE–61) (BE–69)
A6S warning light does no light up.	1. Bulb 2. ABS ECU 3. Wire Harness	 (BR–90)
Malfunction warning light does not light up.	1. Bulb 2. ECM 3. Wire Harness	 (EG–394)
Seat Belt warning light does not light up.	1. Bulb 2. Integration Relay 3. Wiring Harness	 (BE–31)
Discharge warning light does not light up.	1. IG N Fuse 2. Bulb 3. Wire Harness 4. Generator	(BE–4) 5S–FE (CH–7) 1 MZ–FE (CH–31)
Light Failure warning light does no light up.	1. Bulb 2. Light Failure Sensor 3. Wire Harness 4. "Taillight system"	 (BE–73) (BE–17)
Brake warning light does not light up.	1. Bulb 2. Combination Meter Wiring Circuit 3. Parking Brake Switch 4. Brake Fluid Level Warning Switch	 (BE–61) (BE–72) (BE–71)
SRS warning light does not light up.	1. ECU – B Fuse 2. Bulb 3. Wire Harness 4. Center Airbag Sensor Assembly	(BE–4) (RS–55)
Open Door warning light does not light up.	1. Bulb 2. Combination Meter Wiring Circuit 3. Door Courtesy Switch	 (BE–61) (BE–43)

INDICATOR LIGHTS

Trouble	Parts name (see page)
O/D OFF indicator light does not light up.	1. Bulb 2. Combination Meter Wiring Circuit (BE–61) 3. O/D OFF Switch 5S–FE (AX1–102) 1 MZ–FE (AX2–130) 4. Wire Harness
Cruise Control indicator light does not light up.	1. Bulb 2. Cruise Control ECU (BE–176) 3. Wire Harness
High beam indicator light does not light up.	1. Bulb 2. Combination Meter Wiring Circuit (BE–61) 3. Wire Harness 4. "Headlight System" (BE–17)
Turn indicator light does not light up.	1. Bulb 2. Combination Meter Wiring Circuit (BE–61) 3. Wire Harness 4. "Turn Signal and Hazard Warning System" (BE–35)
Electrically Controlled Transmission PWR indicator lights does not light up.	1. Bulb 2. Combination Meter Wiring Circuit (BE–61) 3. TCM Pattern Select Switch 5S–FE (AX1–98) 1 MZ– FE (AX2–126) 4. Wire Harness
Shift indicator lights do not light up. (All)	1. Bulb 2. Combination Meter Wiring Circuit (BE–61) 3. Park / Neutral Position Switch 5S–FE (AX1–92) 1 MZ– FE (AX2–116) 4. Wire Harness
Shift indicator lights do not light up. (L. 2. D)	1. Bulb 2. Combination Meter Wiring Circuit (BE–61) 3. Park / Neutral Position Switch 5S–FE (AX1–92) 1 MZ– FE (AX2–116) 4. Light Control Rheostat (BE–77) 5. Wire Harness
Only one shift indicator does not light up.	1. Bulb 2. Combination Meter Wiring Circuit (BE–61)
Indicator lights do not light up. (Except. Turn, Hi–beam)	1. GAUGE Fuse (BE–4) 2. Wire Harness

SPEEDOMETER INSPECTION

ON–VEHICLE

Using a speedometer tester, inspect the speedometer for allowable indication error and check the operation of the odometer.

HINT: Tire wear and tire over or under inflation will increase the indication error.

If error is excessive, replace the speedometer.

mph/ USA:

Standard indication	Allowable range
20	16 – 24
40	38 – 44
60	56 – 66
80	78 – 88
100	98 – 110
120	118 – 132

km/h/ CANADA:

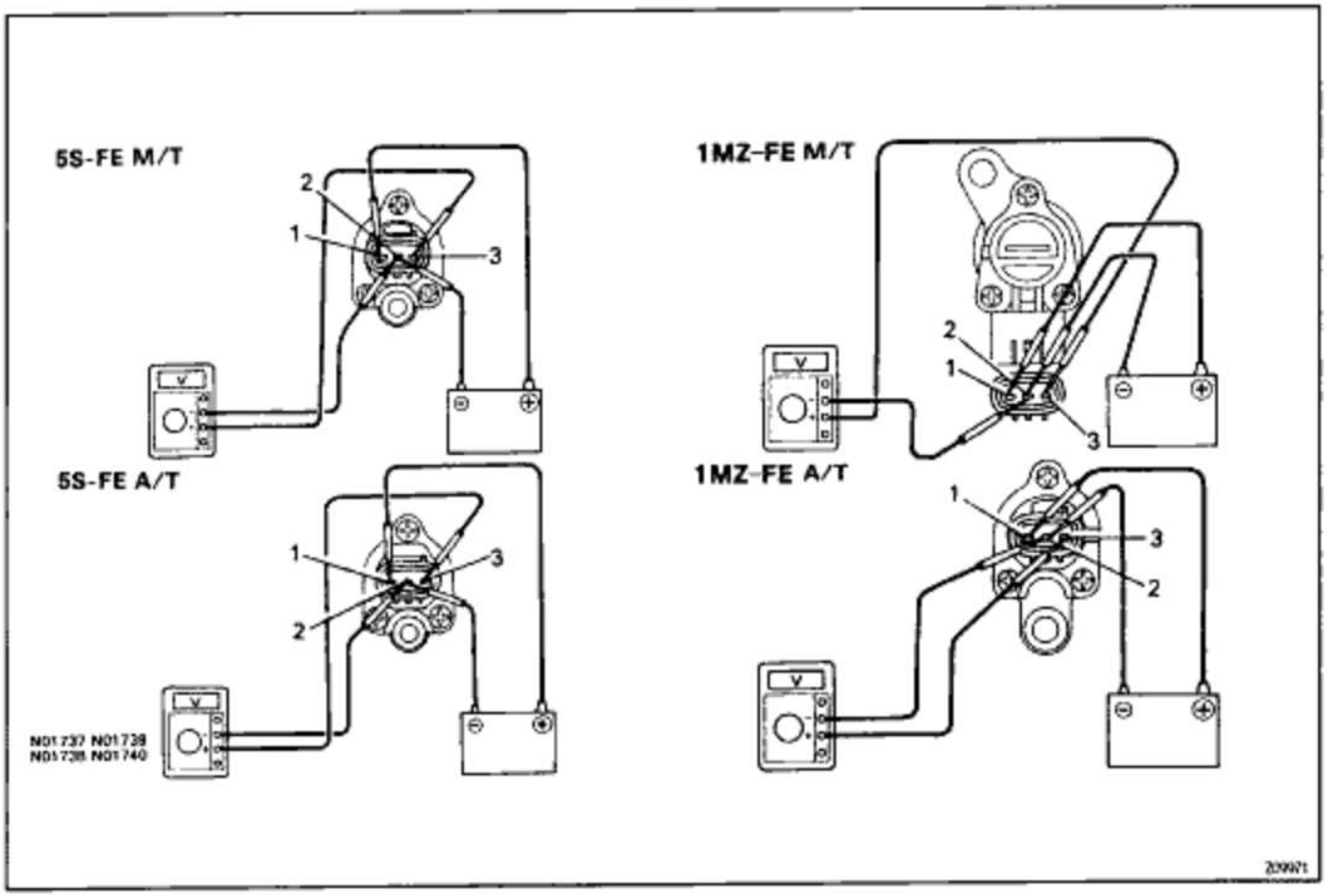
Standard indication	Allowable range
20	17 – 24
40	38 – 46
60	57.5 – 67
80	77 – 88
100	96 – 109
120	115 – 130
140	134 – 151.5
160	153 – 173

SPEED SENSOR INSPECTION

Operation

(a) Connect the positive (+) lead from battery to terminal 1 and negative (–) lead to terminal 2.
(b) Connect the positive (+) lead from tester to terminal 3 and negative (–) lead to terminal 2.
(c) Revolve shaft.
(d) Check that there is voltage change from approx. 0 V to 1 1 V or more between terminals 2 and 3.

HINT: The voltage change should be 4 times par each revolution of the speed sensor shaft.
If operation is not as specified, replace the sensor.



TACHOMETER INSPECTION

ON–VEHICLE

(a) Connect a tune–up test tachometer, and start the engine.

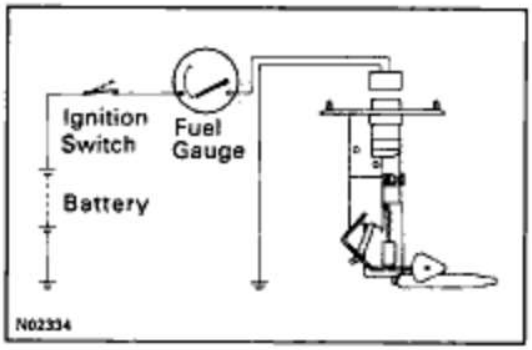
NOTICE: Reversing the connection of the tachometer will damage the transistors and diodes inside.

(b) Compare the tester and tachometer indications.

If error is excessive, replace the tachometer.

DC 13.5 V, 25 °C (77°F)/ rpm

Standard indication	Allowable range
700	630 – 770
1,000	915 – 1,115
2,000	1,820 – 2,220
3,000	2,890 – 3,350
4,000	3,940 – 4,400
5,000	5,025 – 5,425
6,500	6,650 – 6,950
7,000	7,025 – 7,625

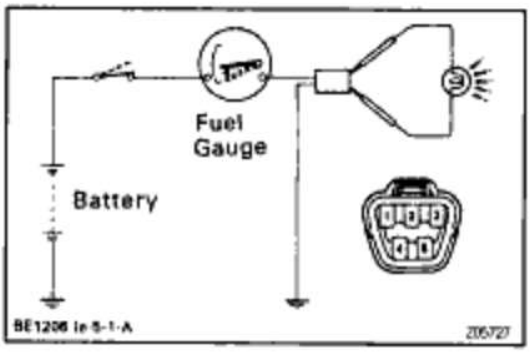


FUEL RECEIVER GAUGE INSPECTION

Operation

(a) Disconnect the connector from the sender gauge assembly.

(b) Turn the ignition switch ON, check that the receiver gauge needle indicates EMPTY.

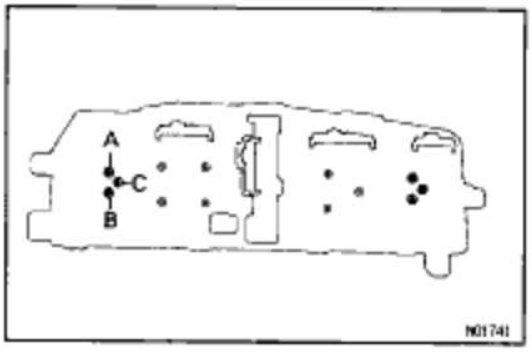


(c) Connect terminals 2 and 3 on the wire harness side connector through a 3.4 w test bulb.

(d) Turn the ignition switch ON, check that the bulb lights up and receiver gauge needle moves toward the full side.

HINT: Because of the silicon oil in the gauge, it will take a short time for the needle to stabilize.

If operation is not as specified, inspect the receiver gauge resistance.

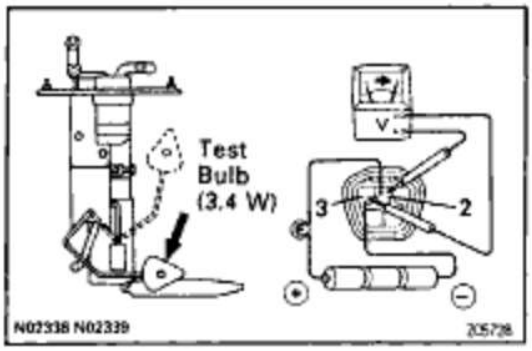


Resistance

Measure the resistance between terminals.

Between terminals	Resistance (Ω)
A–B	Approx. 126
A–C	Approx. 281
B–C	Approx. 154

If resistance value is not as specified, replace the fuel receiver gauge.



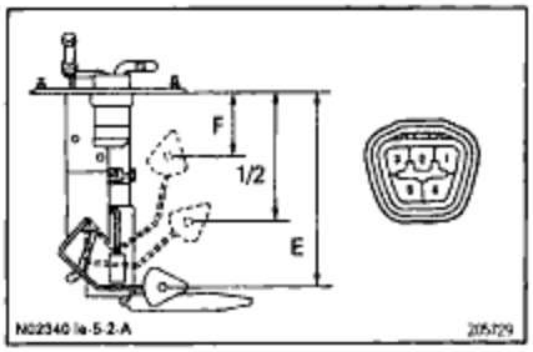
FUEL SENDER GAUGE INSPECTION

Operation

(a) Connect a series of three 1.5 V dry cell batteries.
(b) Connect the positive (+) lead from the dry cell batte–ries to terminal 2 through a 3.4 W test bulb and the negative (–) lead to terminal 3.
(c) Check that the voltage rises between terminals 2 and 3 as the float is moved from the top to bottom posi–tion.

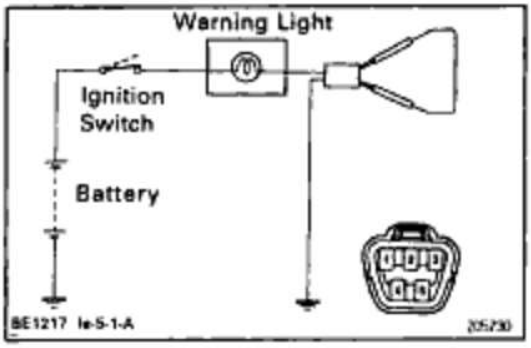
Resistance

Measure the resistance between terminals 2 and 3 for each float position.



Float position mm (in.)		Resistance (Ω)
F	Approx. 35.5 (1.40)	Approx. 3
1/2	Approx. 90.9 (3.59)	Approx. 30.8
E	Approx. 157.4 (6.20)	Approx. 110

If resistance value is not as specified, replace the sender gauge.

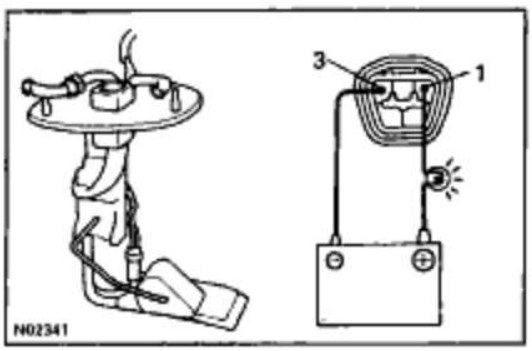


FUEL LEVEL WARNING LIGHT INSPECTION

INSPECT FUEL LEVEL WARNING LIGHT

a) Disconnect the connector from the sender gauge.
b) Connect terminals 1 and 3 on the wire harness side connector.
e) Turn the ignition switch ON, check that the warning light lights up.

If the warning light does not light up, test the bulb or inspect wire harness.

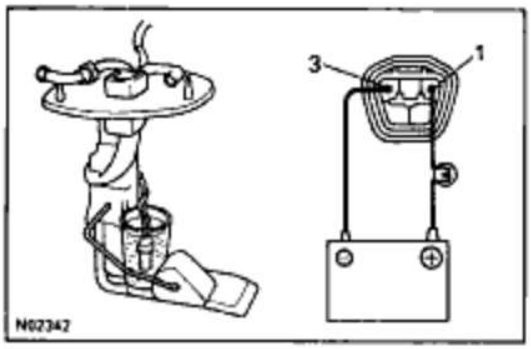


FUEL LEVEL WARNING SWITCH INSPECTION

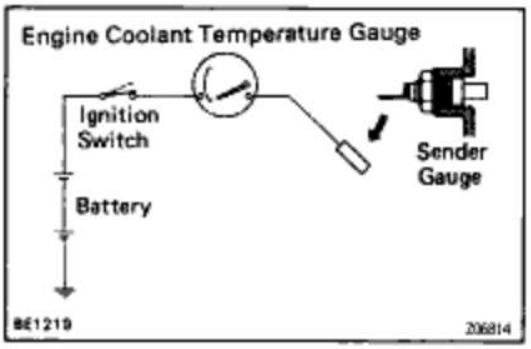
INSPECT FUEL LEVEL WARNING SWITCH

(a) Apply battery positive voltage between terminals 1 and 3 through a 3.4 W test bulb, check that the bulb lights up.

HINT: It will take a short time for the bulb to light up.



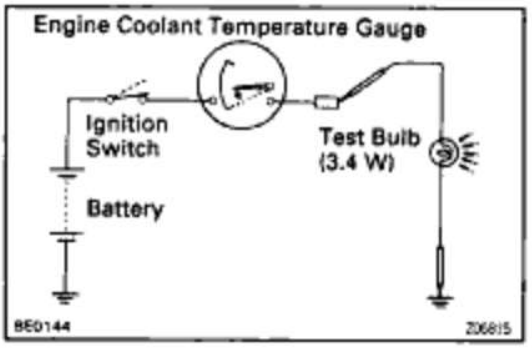
(b) Submerge the switch in fuel, check that the bulb goes out.
If operation is not as specified, replace the sender gauge.



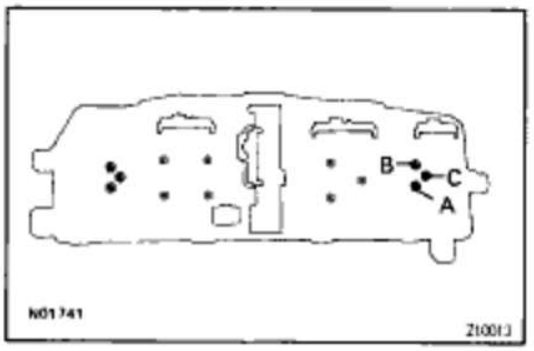
ENGINE COOLANT TEMPERATURE RECEIVER GAUGE AND SENDER GAUGE INSPECTION

Operation

(a) Disconnect the connector from the sender gauge.
(b) Turn the ignition switch ON, check that the receiver gauge needle indicates COOL.



(c) Ground terminal on the wire harness side connector through a 3.4W test bulb.
(d) Turn the ignition switch ON, check that the bulb lights up and the receiver gauge needle moves toward the hot side.
If operation is as specified, replace the sender gauge. Then recheck the system.
If operation is not as specified, measure the receiver gauge resistance.

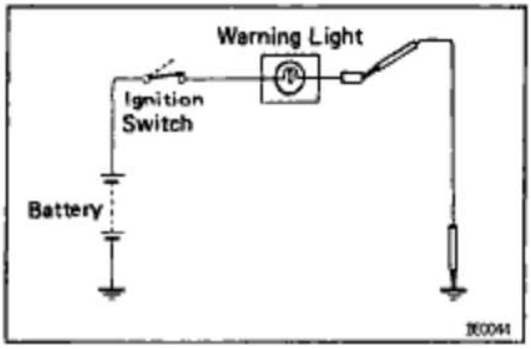


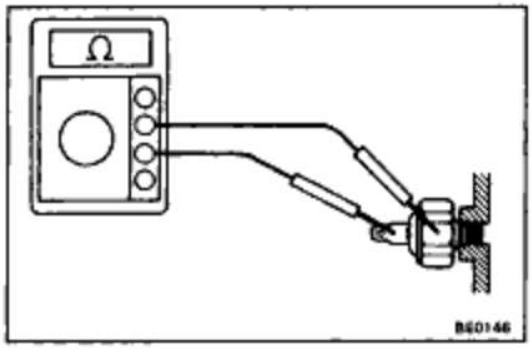
Resistance

Measure the resistance between terminals.
HINT: Connect the test leads so that the current from the ohmmeter can flow according to the chart order.

Between terminals	Resistance (Ω)
A–B	Approx. 54
A–C	Approx. 176
B–C	Approx. 230

If resistance value is not as specified, replace the engine coolant temperature receiver gauge.





LOW OIL PRESSURE WARNING LIGHT INSPECTION

INSPECT LOW OIL PRESSURE WARNING LIGHT

(a) Disconnect the connector from the warning switch and ground terminal on the wire harness side connector.

(b) Turn the ignition switch ON, check that the warning light lights up.
If the warning light does not light up, test the bulb or inspect wire harness.

LOW OIL PRESSURE WARNING SWITCH INSPECTION

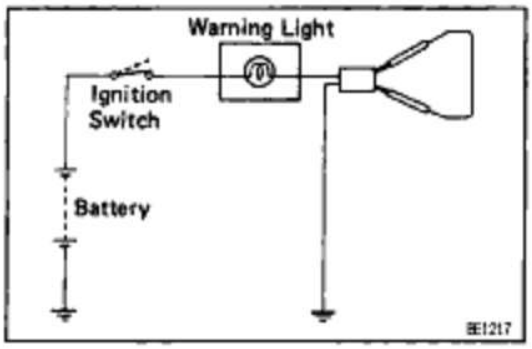
INSPECT LOW OIL PRESSURE WARNING SWITCH

(a) Check that there is continuity between terminal and ground with the engine stopped.

(b) Check that there is no continuity between terminal and ground with the engine running.

HINT: Oil pressure should be over 29 kPa (0.3 kgf/cm^2, 4.3 psi)

If operation is not as specified, replace the switch.



BRAKE FLUID LEVEL WARNING LIGHT INSPECTION

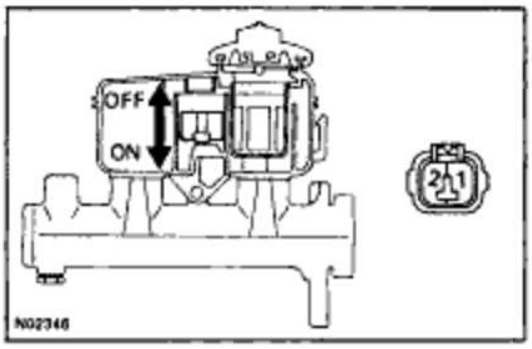
INSPECT BRAKE WARNING LIGHT

(a) Disconnect the connector from the brake fluid warning switch.

(b) Release the parking brake pedal.

(c) Connect terminals on the wire harness side of the level warning switch connector.

(d) Start the engine, check that the warning light lights up.
If the warning light does not light up, test the bulb or wire harness.

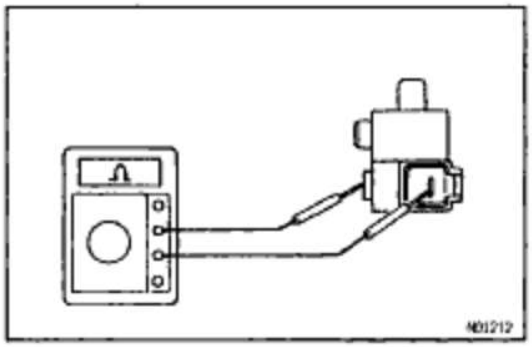


BRAKE FLUID LEVEL WARNING SWITCH INSPECTION

INSPECT BRAKE FLUID LEVEL WARNING SWITCH

(a) Remove the reservoir tank cap and strainer.
(b) Disconnect the connector.
(c) Check that there is no continuity between terminals with the switch OFF (float up).
(d) Use syphon, etc. to take fluid out of the reservoir tank.
(e) Check that there is continuity between terminals with the switch ON (float down).
(f) Pour the fluid back in the reservoir tank.

If operation is not as specified, replace the switch.

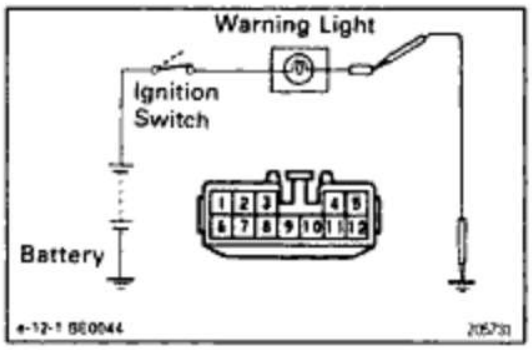


PARKING BRAKE SWITCH INSPECTION

INSPECT PARKING BRAKE SWITCH

(a) Check that there is continuity between terminal and switch body with the switch ON (switch pin released).
(b) Check that there is no continuity between terminal and switch body with the switch OFF (switch pin pushed in).

If operation is not as specified, replace the switch or inspect ground point.

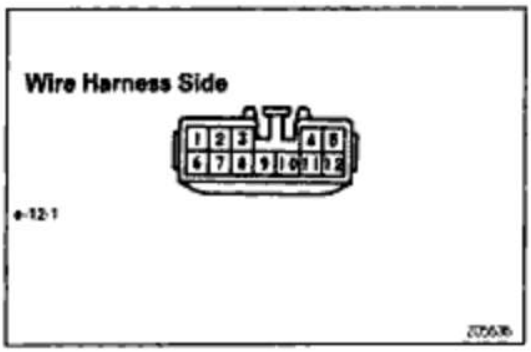


LIGHT FAILURE WARNING LIGHT INSPECTION

INSPECT LIGHT FAILURE WARNING LIGHT

(a) Disconnect the connector from the light failure sensor and ground terminal 4 on the wire harness side con–nector.
(b) Start the engine, check that the warning light lights up.

If the warning light does not light up, test the bulb or inspect wire harness.



LIGHT FAILURE SENSOR INSPECTION

INSPECT LIGHT FAILURE SENSOR

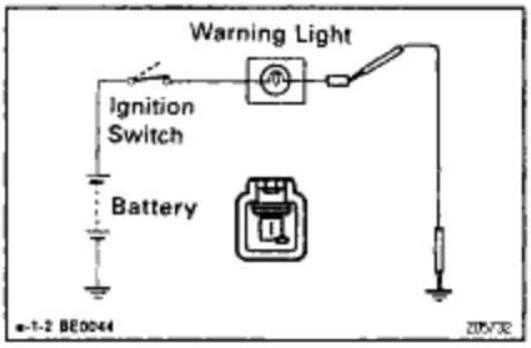
Relay Circuit

Disconnect the connector from the sensor and inspect the connector on the wire harness side, as shown.

Tester connection to terminal number	Condition	Specified value (Continuity)
1 – Ground	Constant	* Continuity
2 – Ground	Constant	* Continuity
9 – Ground	Constant	* Continuity
11 – Ground	Constant	Continuity
Tester connection to terminal number	Condition	Specified value (Voltage)
3 – Ground	Light control switch position OFF	No voltage
3 – Ground	Light control switch position TAIL or HEAD	Battery positive voltage
4 – Ground	Engine condition Stop	No voltage
4 – Ground	Engine condition Running	Battery positive voltage
8 – Ground	Ignition switch position LOCK or ACC	No voltage
8 – Ground	Ignition switch position ON	Battery positive voltage
9 – Ground 10 – Ground	Stop light switch position OFF	No voltage
9 – Ground 10 – Ground	Stop light switch position ON	Battery positive voltage

*: There is resistance because this circuit is grounded through the bulb.

If circuit is as specified, replace the sensor. If the circuit is not as specified, inspect the circuits connected to other parts.



OPEN DOOR WARNING LIGHT INSPECTION

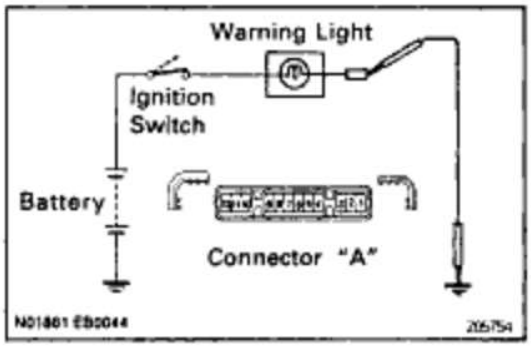
INSPECT OPEN DOOR WARNING LIGHT

Disconnect the connector from the door courtesy switch, and ground terminal 1 on the wire harness side connector and check that the warning light lights up.

If the warning light does not light up, inspect the bulb or wire harness.

DOOR COURTESY SWITCH

See page BE–43.



SEAT BELT WARNING LIGHT INSPECTION

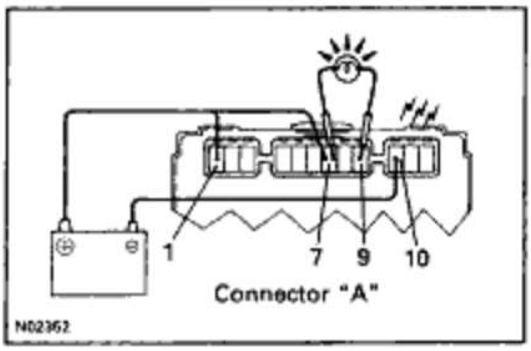
INSPECT SEAT BELT WARNING LIGHT

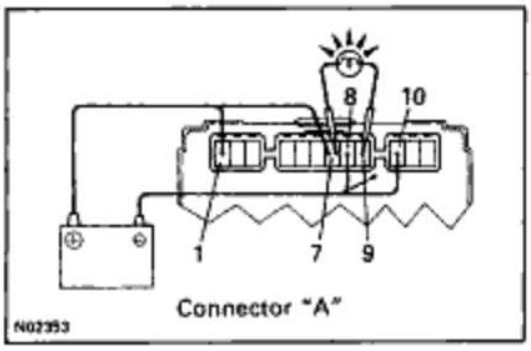
(a) Remove the integration relay from the junction block No. 1.

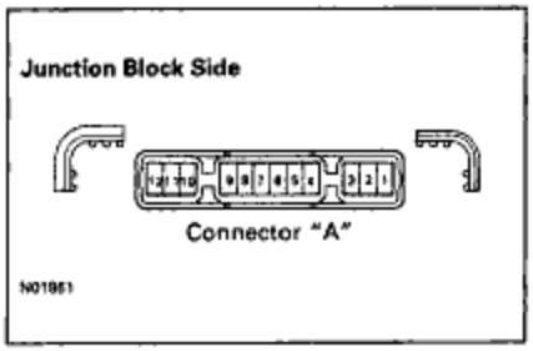
(b) Ground terminal A9 on the junction block side con–nector.

(c) Turn the ignition switch ON, check that the warning light lights up.

If the warning light does not light up, inspect the bulb or wire harness.







INTEGRATION RELAY INSPECTION

INSPECT INTEGRATION RELAY

Operation/ Seat belt warning

(a) Connect the positive (+) lead from the battery to terminals Al and A7.
(b) Connect the terminal A7 to terminal A9 through the 3.4 W test bulb.
(c) Connect the negative (–) lead from the battery to terminal Al 0.
(d) Check that the bulb lights and the chime sounds for 4 – 8 seconds.
(e) Return to step
(a), and operate the chime again.
(f) Connect the negative (–) lead from the battery to terminal A8.
(g) Check that the chime stops sounding.

HINT: Check the chime within a period of 4 to 8 seconds.

If operation is not as specified, replace the relay.

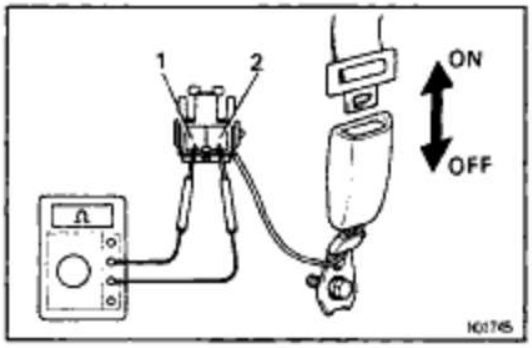
Relay circuit/ Seat belt warning

Remove the relay from the junction block No.1 and inspect the connectors on the junction block side.

Tester connection to terminal number	Condition	Specified value (Continuity)
A8 – Ground	Driver's buckle switch OFF (Seat best unfastened)	No continuity
A8 – Ground	Driver's buckle switch ON (Seat best fastened)	Continuity
A10 – Ground	Constant	Continuity

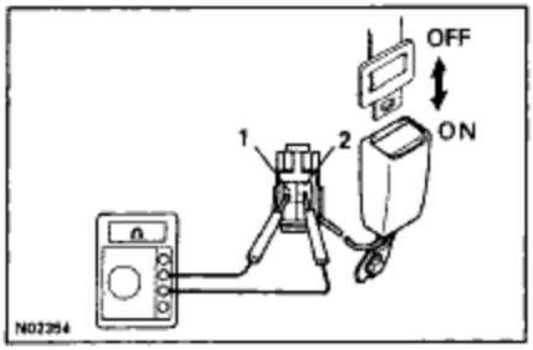
Tester connection to terminal number	Condition	Specified value (Voltage)
A1 – Ground	Constant	Battery positive voltage
A7 – Ground A9 – Ground	Ignition switch position OFF or ACC	No voltage
A7 – Ground A9 – Ground	Ignition switch position ON	Battery positive voltage

If circuit is as specified, trying replacing the relay with a new one.
Is circuit is not as specified, inspect the circuits con–nected to other parts.



BUCKLE SWITCH INSPECTION

INSPECT BUCKLE SWITCH
w/o POWER SEAT:
Continuity
(a) Check that there is continuity between terminals on the switch side connector with the switch ON (belt fastened).
(b) Check that there is no continuity between terminals on the switch side connector with the switch OFF (belt unfastened).
If operation is not as specified, replace the seat belt inner belt.



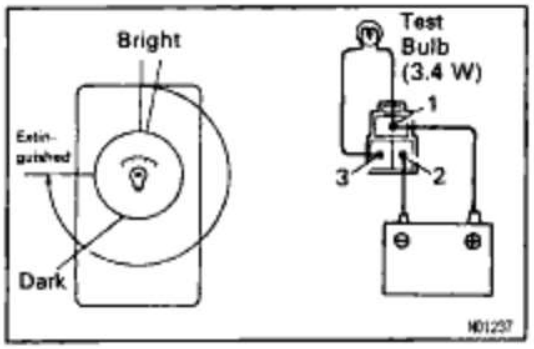
w/ POWER SEAT:

Continuity

(a) Check that there is continuity between terminals 1 and 2 on the switch side connector with the switch ON (belt fastened). '

(b) Check that there is no continuity between terminals 1 and 2 on the switch side connector with the switch OFF (belt unfastened).

If operation is not as specified, replace the seat belt inner belt.



METER ILLUMINATION CONTROL SYSTEM

INSPECT LIGHT CONTROL RHEOSTAT

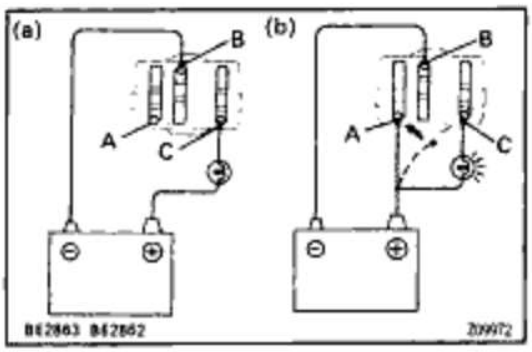
(a) Connect terminals 1 and 3 through a 3.4 W test bulb.

(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2.

(c) Turn the rheostat knob to fully counterclockwise, check that the test bulb goes out.

(d) Gradually turn the rheostat knob to clockwise, check that the test bulb brightness changes from dark to bright.

If operation is not as specified, replace the rheostat.



BULB CHECK RELAY INSPECTION

INSPECT BULB CHECK RELAY

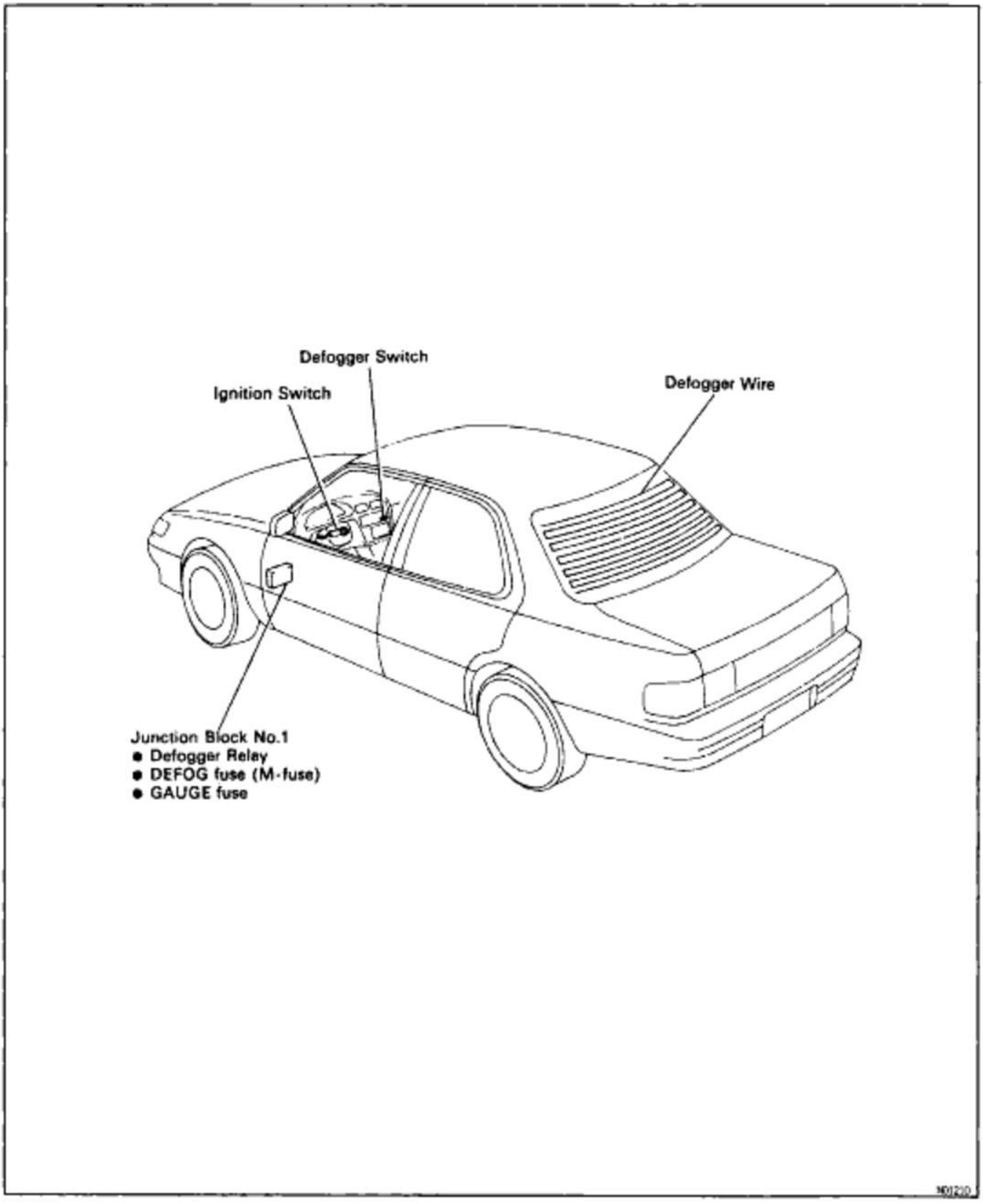
(a) Connect the positive (+) lead from the battery to terminal C through a 1.4 W test bulb and the negative (–) lead to terminal B, check that the test bulb does not light up.

(b) Connect the positive (+) lead from the battery to terminal A , check that the test bulb light up.

If operation is not as specified, replace the relay.

DEFOGGER SYSTEM

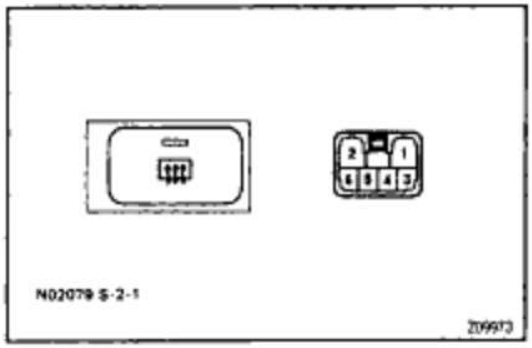
PARTS LOCATION



TROUBLESHOOTING

The table below will be useful for you in troubleshooting these electrical problems. The most likely causes of the malfunction are shown in the order of their probability. Inspect each part in the order shown, and replace the part when it is found to be faulty.

Trouble	Paris name	(See page)
All defogger systems do not operate.	1. DEFOG M – Fuse 2. GAUGE Fuse 3. Defogger Relay 4. Defogger Switch 5. Wire Harness	(BE–4) (BE–4) (BE–80) (BE–79)
Rear window defogger does not operate.	1. Defogger Wire 2. Choke Coil 3. Wire Harness	(BE–80)



DEFOGGER SWITCH INSPECTION

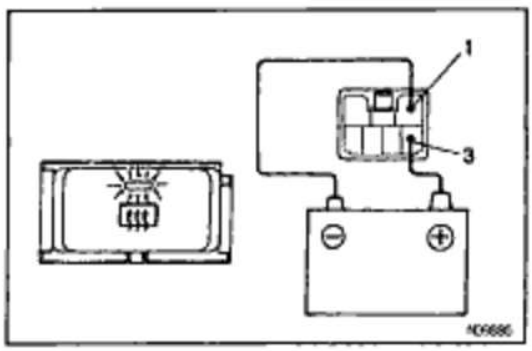
INSPECT DEFOGGER SWITCH

Continuity

Inspect the switch continuity between terminals.

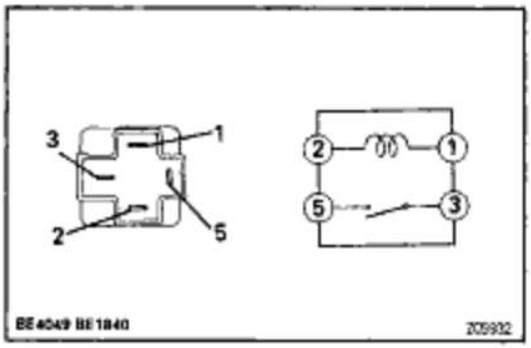
Condition	Tester connection to terminal number	Specified value
Switch OFF	–	No continuity
Switch ON	3–6	Continuity
Illumination circuit	4–5	Continuity

If continuity is not as specified, check the bulb or replace the switch.



INDICATOR LIGHT OPERATION

Connect the positive (+) lead from the battery to terminal 3 and the negative (–) lead to terminal 1, check that the indicator light does not light up, replace the switch.



DEFOGGER RELAY INSPECTION

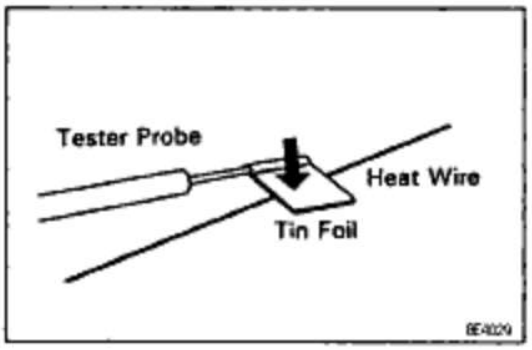
INSPECT DEFOGGER RELAY

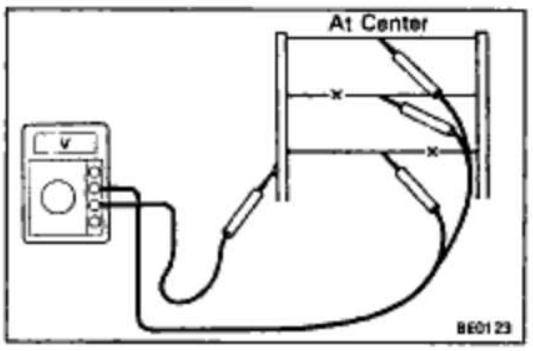
Continuity

Inspect the relay continuity between terminals.

Condition	Tester connection to terminal number	Specified value
Constant	1–2	Continuity
Apply B + between terminals 1 and 2.	3–5	Continuity

If continuity is not as specified, replace the relay.





DEFOGGER WIRE INSPECTION

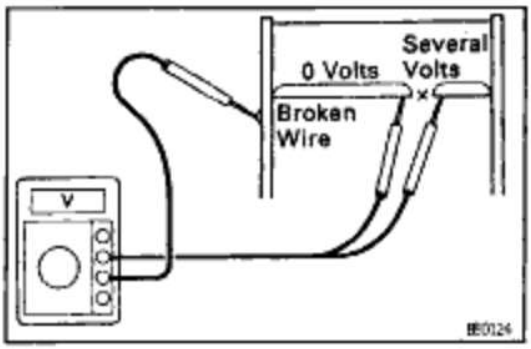
NOTICE:

- **When cleaning the glass, use a soft, dry cloth, and wipe the glass in the direction of the wire. Take care not to damage the wires.**
- **Do not use detergents or glass cleaners with abra–sive ingredients.**
- **When measuring voltage, wind a piece of tin foil around the top of the negative probe and press the foil against the wire with your finger, as shown.**

(a) Turn the ignition switch ON.
(b) Turn the defogger switch ON.
(c) Inspect the voltage at the center of each heat wire, as shown.

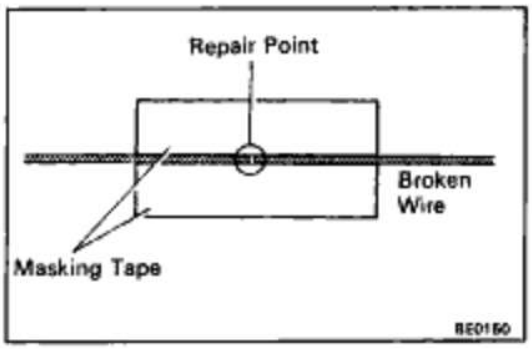
Voltage	Criteria
Approx. 5V	Okay (No break in wire)
Approx. 1 OV or OV	Broken wire

HINT: If there is approximately 10 V, the wire is broken between the center of the wire and the posi–tive (+) end. If there is no voltage, the wire is broken between the center of the wire and ground.



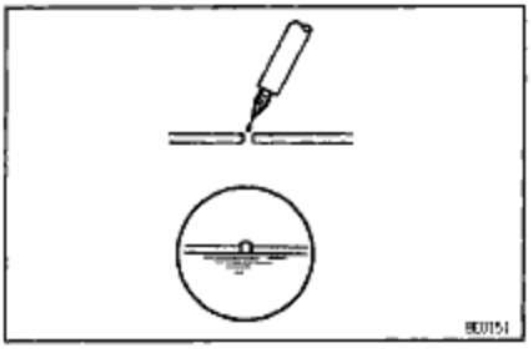
(d) Place the voltmeter positive (+) lead against the defogger positive (+) terminal.
(e) Place the voltmeter negative (–) lead with the foil strip against the heat wire at the positive (+) terminal end and slide it toward the negative (–) terminal end.
(f) The point where the voltmeter deflects from zero to several V is the place where the heat wire is broken.

HINT: If the heat wire is not broken, the voltmeter indicates 0 V at the positive (+) end of the heat wire but gradually increases to about 12 V as the meter probe is moved to the other end.



DEFOGGER WIRE REPAIR

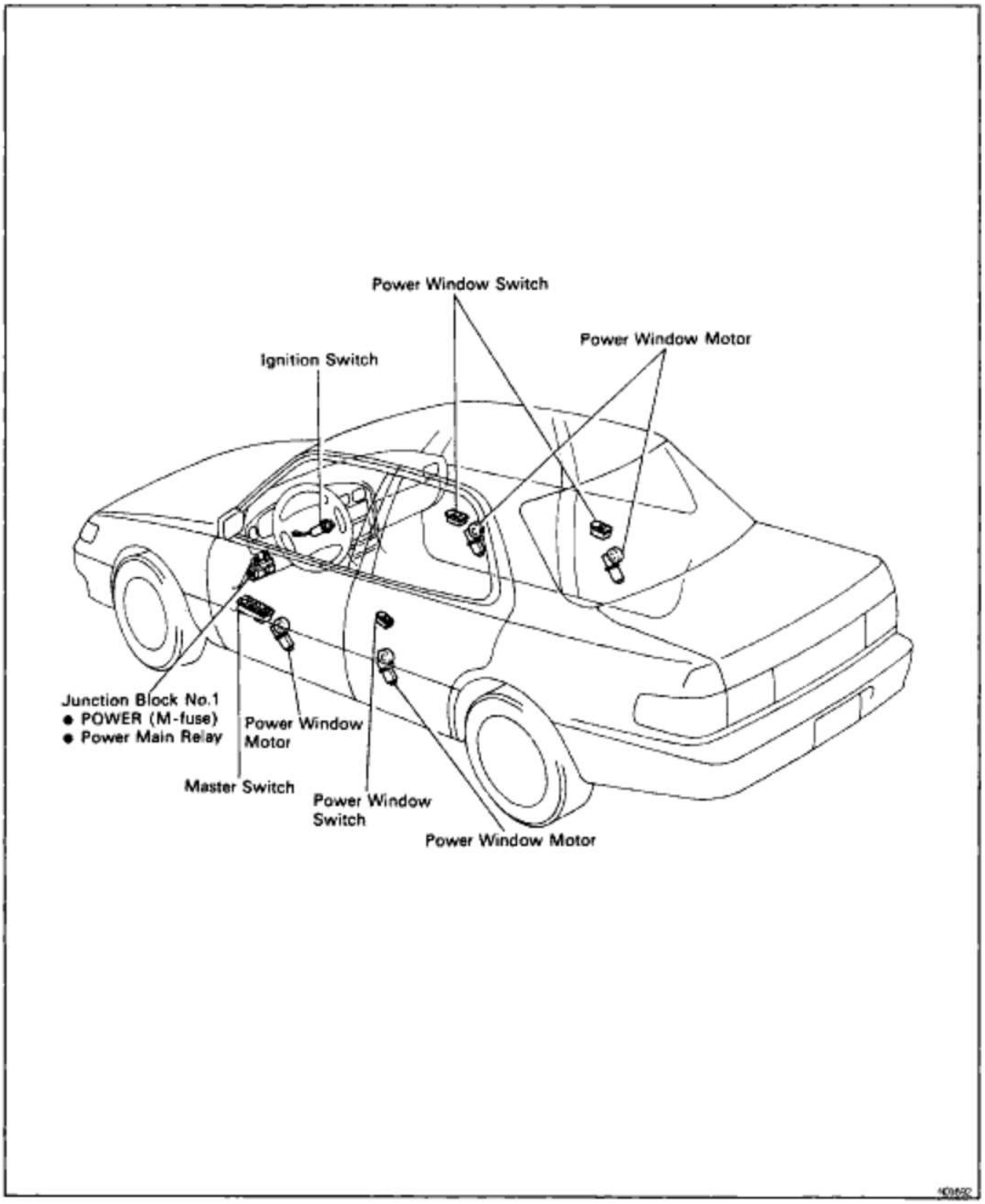
(a) Clean the broken wire tips with a grease, wax and silicone remover.
(b) Place the masking tape along both sides of the wire to be repaired.
(c) Thoroughly mix the repair agent (Dupont paste No. 4817).



(d) Using a fine tip brush, apply a small amount to the wire.
(e) After a few minutes, remove the masking tape.
(f) Allow the repair to stand at least 24 hours.

POWER WINDOW CONTROL SYSTEM

PARTS LOCATION

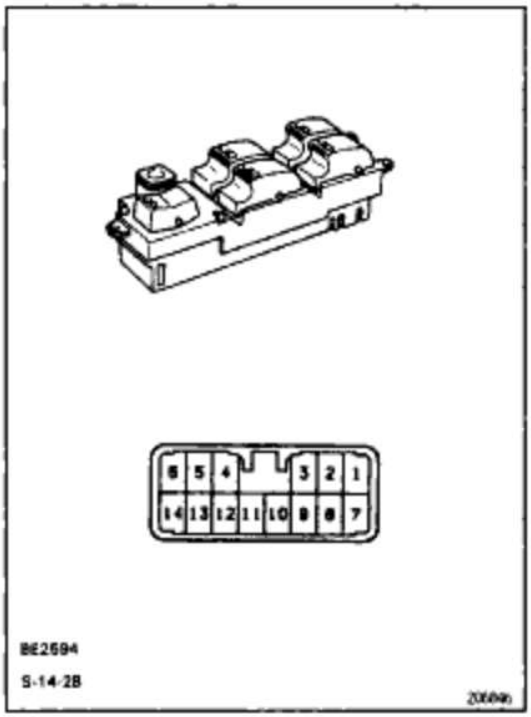


TROUBLESHOOTING

The table below will be useful for you in troubleshooting these electrical problems. The most likely causes of the malfunction are shown in the order of their probability. Inspect each part in the order shown, and replace the part when it is found to be faulty.

Trouble	Parts name	(See page)
*1 Power window does not operate.	1. ALT H –Fuse 2. P/V11 M–Fuse 3. Wire Harness	(BE–4) (BE–4)
*2 Power window does not operate.	1. GAUGE Fuse 2. Ignition Switch 3. P/W M–Fuse 4. Power Main Relay 5. Power Window Master Switch 6. Wire Harness	(BE–4) (BE–14) (BE–4) (BE–89) (BE–84)
"One Touch Power Window System" does not operate.	1. Power Window Master Switch	(BE–84)
Only one window glass does not move.	1. Power Window Master Switch 2. Power Window Switch 3. Power Window Motor 4. Wire Harness	(BE–84) (BE–87) (BE–87)
"Window Lock System" does not operate.	1. Power Window Master Switch	(BE–84)
"Window Lock Illumination" does not light up.	1. Power Window Master Switch	(BE–84)
Key–off power window does not operate.	1. DOME Fuse 2. GAUGE Fuse 3. Ignition Switch 4. Door Open Detection Switch 5. Wire Harness	(BE–4) (BE–4) (BE–14) (BE–94)

*1: Door Lock does not operate.
*2: Door Lock is normal.



POWER WINDOW MASTER SWITCH INSPECTION

INSPECT POWER WINDOW MASTER SWITCH

Continuity

Inspect the switch continuity between terminals.

Front Driver's Switch (Window unlock)/ Continuity

Switch position	Tester connection to terminal number	Specified value
UP	6–7–8 1 –2–13	Continuity
OFF	1–2–6–13	Continuity
DOWN	1–2–6 7–8–13	Continuity

Front Driver's Switch (Window lock)/ Continuity

Switch position	Tester connection to terminal number	Specified value
UP	6–7–8 1–2–13	Continuity
OFF	1–2–6–13	Continuity
DOWN	1–2–6 7–8–13	Continuity

Front Passenger's Switch (Window unlock)/ Conti–nuity

Switch position	Tester connection to terminal number	Specified value
UP	7–8–12	Continuity
OFF	5–12	Continuity
DOWN	5–7–8	Continuity

Front Passenger's Switch (Window lock)/ Continui–ty

Switch position	Tester connection to terminal number	Specified value
UP	1–2–5 7–8–12	Continuity
OFF	1–2–5–12	Continuity
DOWN	5–7–8 1–2–12	Continuity

Rear Left Switch (Window unlock)/ Continuity

Switch position	Tester connection to terminal number	Specified value
UP	7–8–10	Continuity
OFF	9–10	Continuity
DOWN	7–8–9	Continuity

Rear Left Switch (Window lock)/ Continuity

Switch position	Tester connection to terminal number	Specified value
UP	7–8–10 1–2–9	Continuity
OFF	1–2–9–10	Continuity
DOWN	7–8–9 1–2–10	Continuity

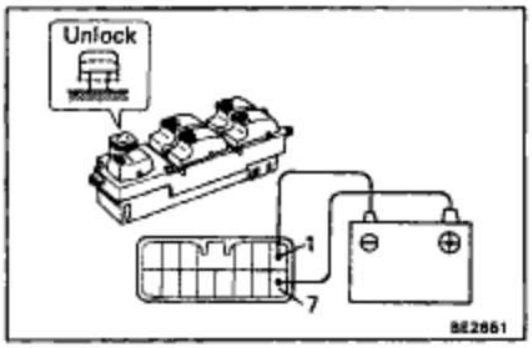
Rear Right Switch (Window unlock)/ Continuity

Switch position	Tester connection to terminal number	Specified value
UP	7–8–11	Continuity
OFF	11–14	Continuity
DOWN	7–8–14	Continuity

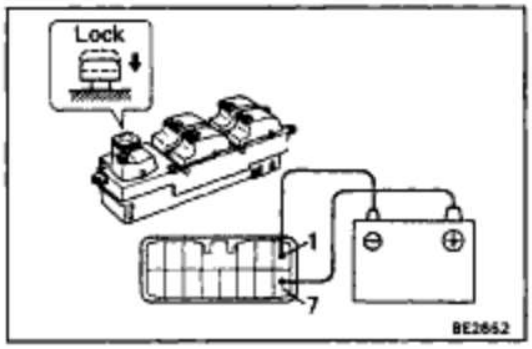
Rear Right Switch (Window lock)/ Continuity

Switch position	Tester connection to terminal number	Specified value
UP	7–8–11 1–2–14	Continuity
OFF	1–2–11–14	Continuity
DOWN	7–8–14 1–2–11	Continuity

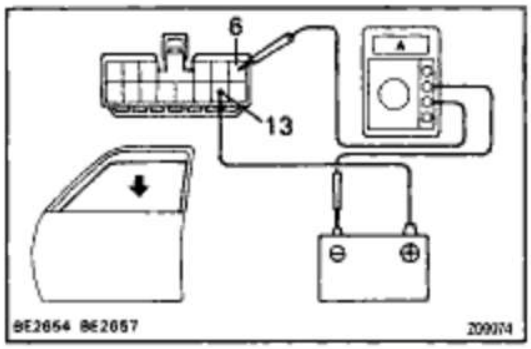
If continuity is not as specified, relace the master switch.



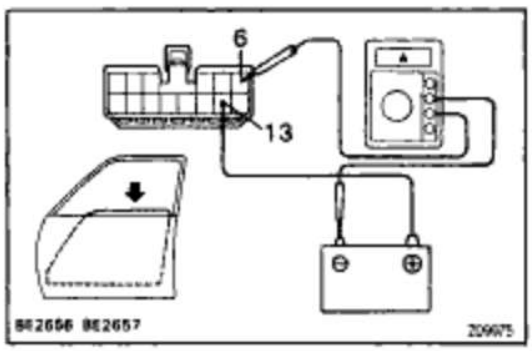
Illumination
(a) Set the window lock switch to the unlock position.
(b) Connect the positive (+) lead from the battery to terminal 7 and the negative (–) lead to terminal 1, check that all the illuminations light up.

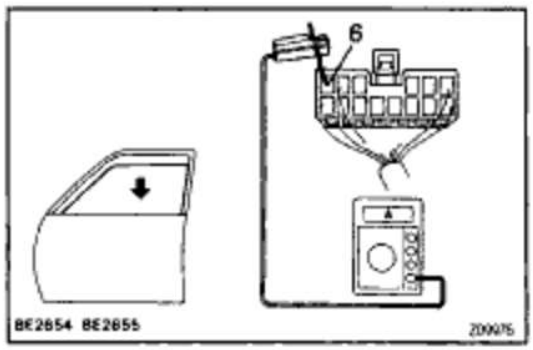


(c) Set the window lock switch to the lock position, check that all the passenger's power window switch illumi–nations go out.
If operation is not as specified, replace the master switch.

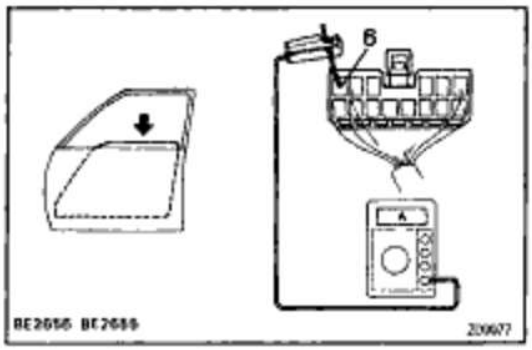


One Touch Power Window System/ Current of Cir–cuit
Inspection using an ammeter.
(a) Disconnect the connector from the master switch.
(b) Connect the positive (+) lead from the ammeter to terminal 6 on the wire harness side connector and the negative (–) lead to negative terminal of the battery.
(c) Connect the positive (+) lead from the battery to terminal 13 on the wire harness side connector.
(d) As the window goes down, check that the current flow is approximately 7 A.
(e) Check that the current increases approximately 14.5 A or more when the window stops going down.
HINT: The circuit breaker opens some 4 – 40 seconds after the window stops going down, so that check must be made before the circuit breaker operates.
If the operation is as specified, replace the master switch.

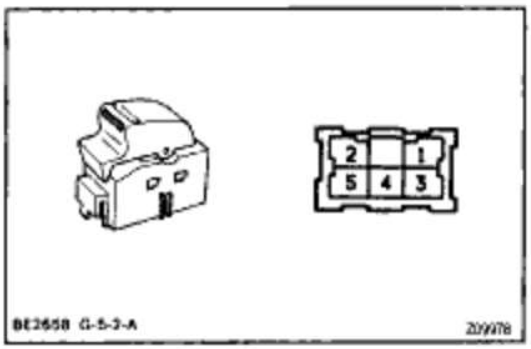




Inspection using an ammeter with a current–meas–uring probe.
(a) Remove the master switch with connector connected.
(b) Attach a current–measuring probe to terminal 6 of the wire harness.
(c) Turn the ignition switch ON and set the power window switch in the down position.
(d) As the window goes down, check that the current flow is approximately 7 A.



(e) Check that the current increases approximately 14.5 A or more when the window stops going down.
HINT: The circuit breaker opens some 4 – 40 seconds after the window stops going down, so that check must be made before the circuit breaker operates.
If operation is as specified, replace the master switch.



POWER WINDOW SWITCH INSPECTION

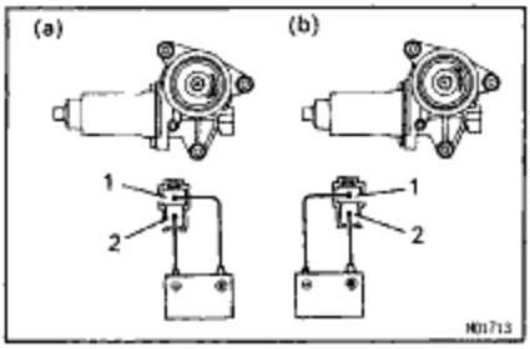
INSPECT POWER WINDOW SWITCH

Switch Continuity

Inspect the switch continuity between terminals.

Switch position	Tester connection to terminal number	Specified value
UP	1–5 3–4	Continuity
OFF	1–Z 3–4	Continuity
DOWN	1–2 4–5	Continuity

If continuity is not as specified, replace the switch.

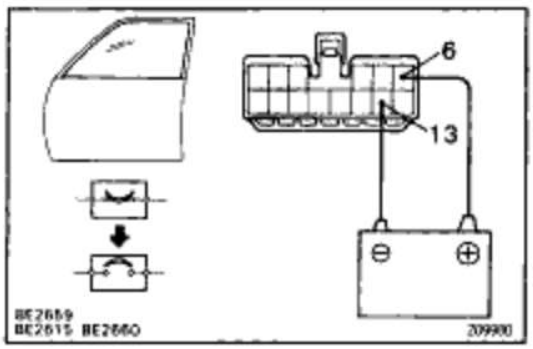


POWER WINDOW MOTOR INSPECTION

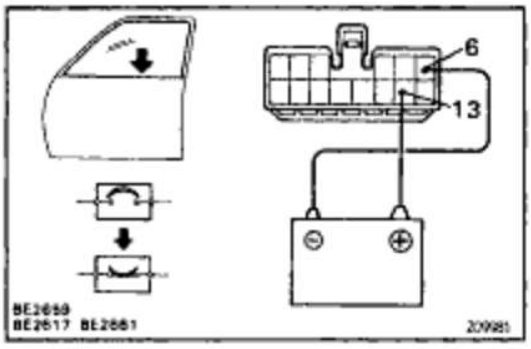
INSPECT POWER WINDOW MOTOR

Driver's Door Motor/ Motor Operation

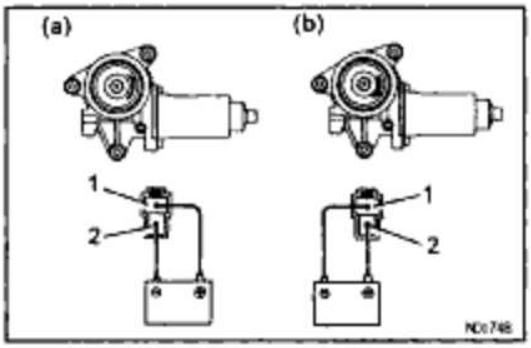
(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2, check that the motor turns clockwise.
(b) Reverse the polarity, check that the motor turns coun–terclockwise.
If operation is not as specified, replace the motor.
Driver's Door Motor/ Circuit Breaker Operation



(a) Disconnect the connector from the master switch.
(b) Connect the positive (+) lead from the battery to terminal 6 and the negative (–) lead to terminal 13 on the wire harness side connector and raise the window to full closed position.
(c) Continue to apply voltage, check that there is a circuit breaker operation noise within approximately 4 to 40 seconds.

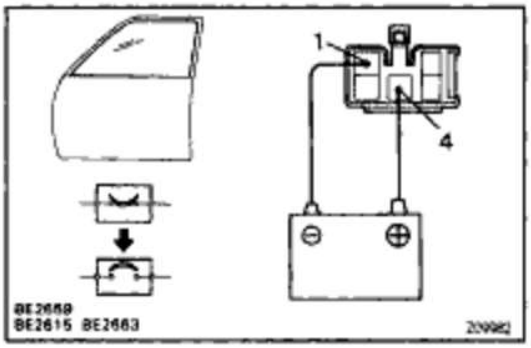


(d) Reverse the polarity, check that the window begins to descend within approximately 60 seconds.
If operation is not as specified, replace the motor.



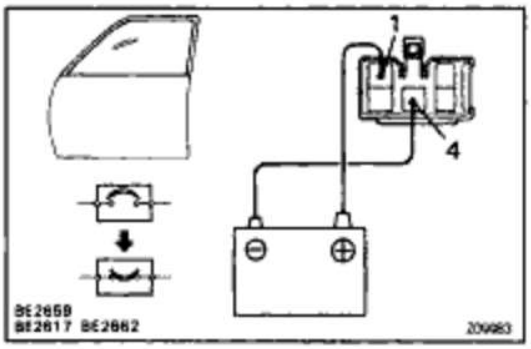
Front Passenger's Door Motor/ Motor Operation

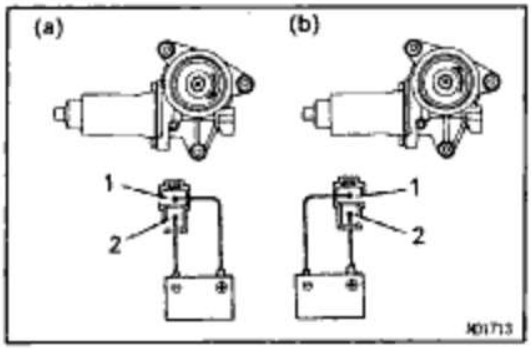
(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2, check that the motor turns counterclockwise.
(b) Reverse the polarity, check that the motor turns clo–ckwise.
If operation is not as specified, replace the motor.

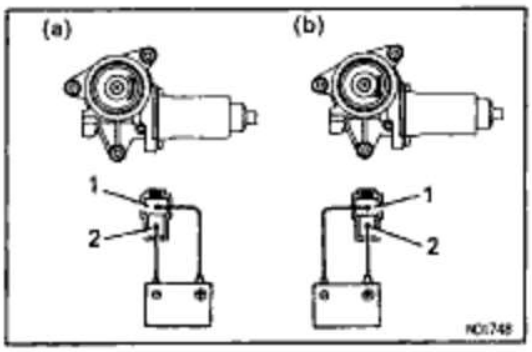


Front Passenger's Door Motor/ Circuit Breaker Op–eration

(a) Disconnect the connector from the power window switch.
(b) Connect the positive (+) lead from the battery to terminal 4 and the negative (–) lead to terminal 1 on the wire harness side connector, and raise the window to full closed position.
(c) Continue to apply voltage, check that there is a circuit breaker operation noise within approximately 4 to 40 seconds.
(d) Reverse the polarity, check that the window begins to descend within approximately 60 seconds.
If operation is not as specified, replace the motor.







Rear Left Side Door Motor/ Motor Operation

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2. check that the motor turns clockwise.

(b) Reverse the polarity, check that the motor turns coun–terclockwise.

If operation is not as specified, replace the motor.

Rear Left Side Door Motor/ Circuit Breaker Opera–tion

See step of Front Passenger Door Motor on page BE–88.

Rear Right Side Door Motor/ Motor Operation

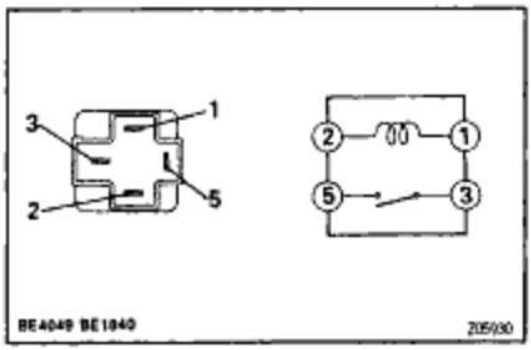
(a) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1, check that the motor turns counterclockwise.

(b) Reverse the polarity, check that the motor turns clo–ckwise.

If operation is not as specified, replace the motor.

Rear Right Side Door Motor/ Circuit Breaker Opera–tion

See step of Front Passenger Door Motor on page BE–88.



POWER MAIN RELAY INSPECTION

INSPECT POWER MAIN RELAY

Continuity

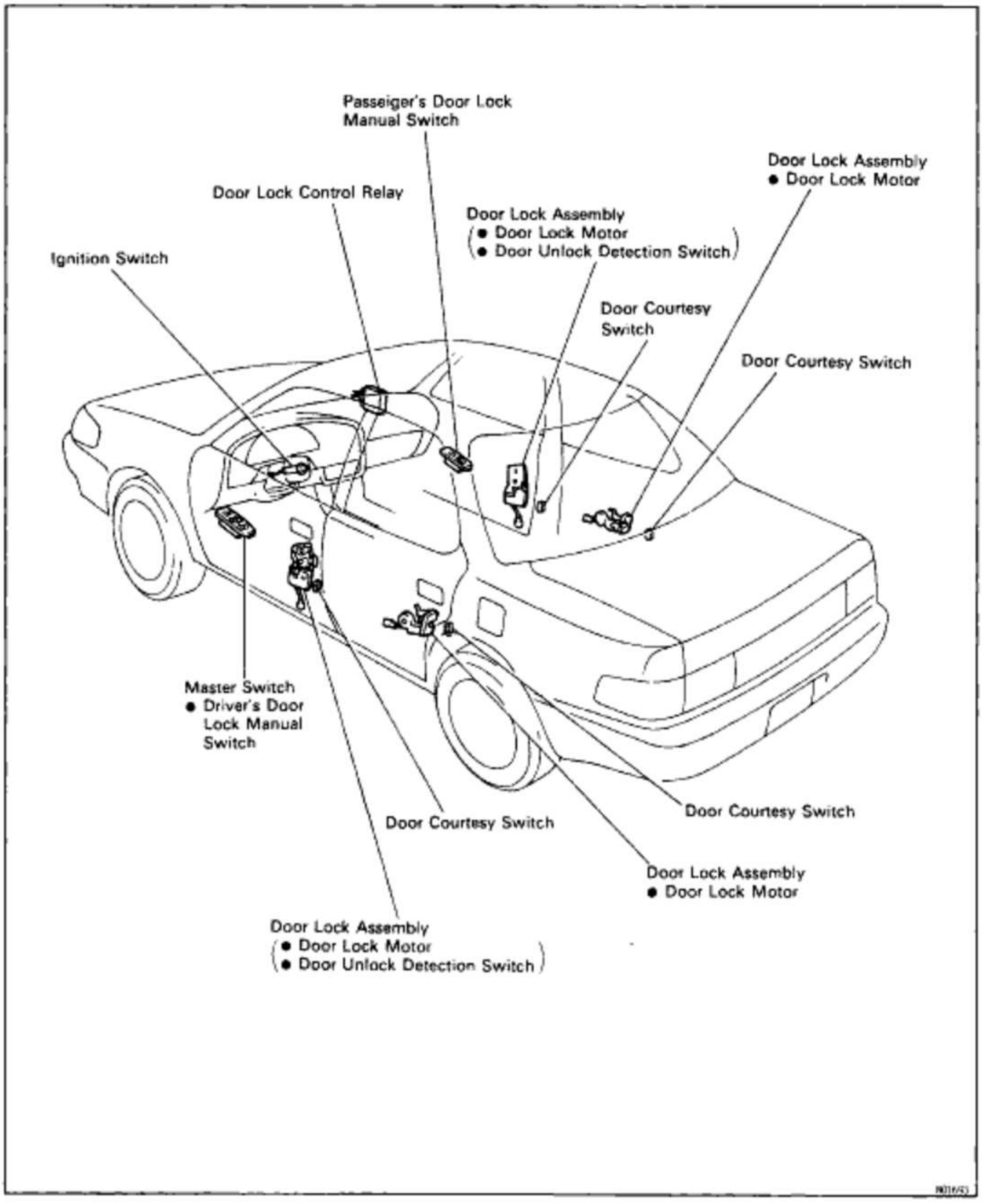
Inspect the relay continuity between terminals.

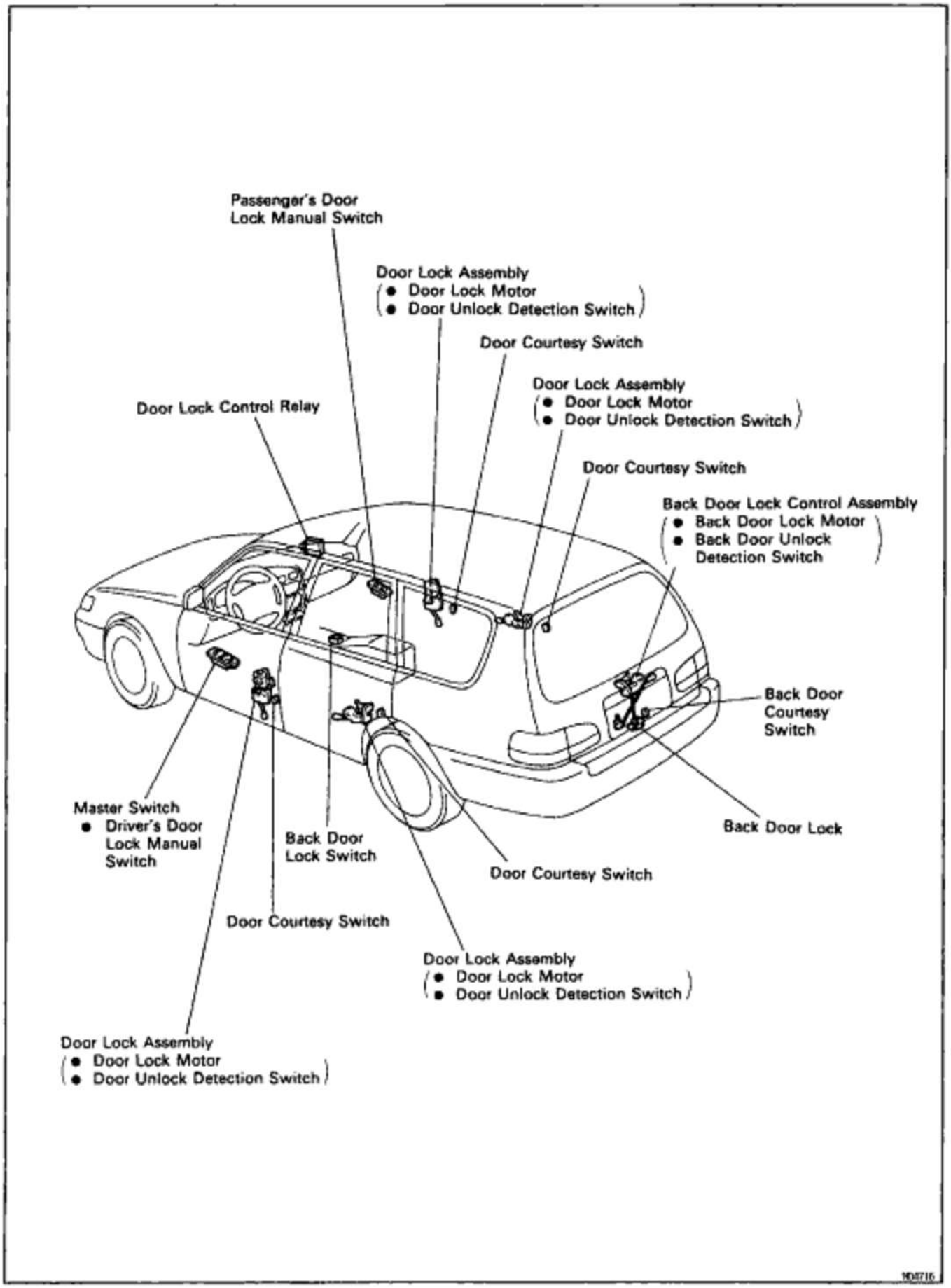
Condition	Tester connection to terminal number	Specified value
Constant	1–2	Continuity
Apply B + between terminals t and 2.	3–5	Continuity

If continuity is not as specified, replace the relay.

POWER DOOR LOCK CONTROL SYSTEM

PARTS LOCATION

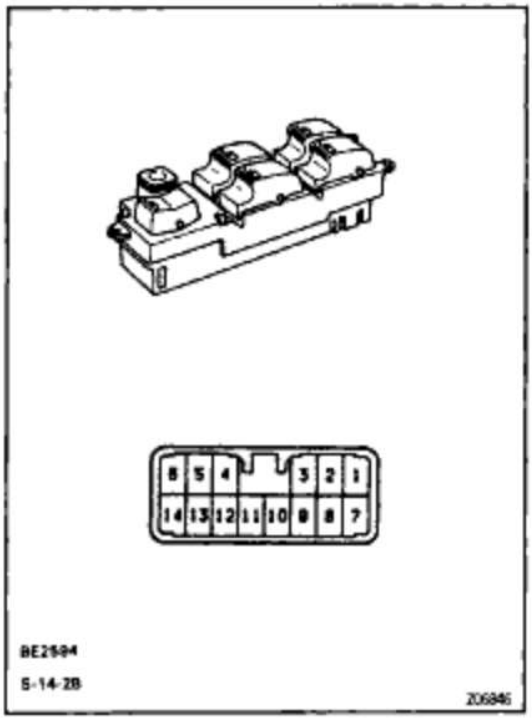



Passenger's Door Lock Manual Switch
Door Lock Assembly
● Door Lock Motor
● Door Unlock Detection Switch
Door Courtesy Switch
Door Lock Assembly
● Door Lock Motor
● Door Unlock Detection Switch
Door Lock Control Relay
Door Courtesy Switch
Back Door Lock Control Assembly
● Back Door Lock Motor
● Back Door Unlock Detection Switch
Back Door Courtesy Switch
Master Switch
● Driver's Door Lock Manual Switch
Back Door Lock Switch
Back Door Lock
Door Courtesy Switch
Door Courtesy Switch
Door Lock Assembly
● Door Lock Motor
● Door Unlock Detection Switch
Door Lock Assembly
● Door Lock Motor
● Door Unlock Detection Switch

TROUBLESHOOTING

The table below will be useful for you in troubleshooting these electrical problems. The most likely causes of the malfunction are shown in the order of their probability. Inspect each part in the order shown, and replace the part when it is found to be faulty.

Trouble	Parts name	(See page)
"Door lock system" does not operate at all.	1. POWER Fuse 2. RADIO/CIG Fuse 3. Door Lock Control Relay 4. Wire Harness	(BE–4) (BE–4) (BE–98)
Door lock system does not operate by manual switch.	1. Power Window Master Switch 2. Door Lock Manual Switch 3. Door Lock Control Relay 4. Wire Harness	(BE–93) (BE–93) (BE–98)
Door lock system does not operate by door key.	1. Door Key Lock and Unlock Switch 2. Door Lock Control Relay 3. Wire Harness 4. Door Lock Link Disconnected	(BE–94) (BE–98)
Fault in 2–Operation unlock function of Driver's side door key lock and unlock switch.	1. Door Key Lock and Unlock Switch 2. Door Lock Control Relay 3. Wire Harness	(BE–94) (BE–98)
Fault in key confine prevention operate.	1. Door Lock Control Relay 2. Key Unlock Warning Switch 3. Door Courtesy Switch 4. Wire Harness	(BE–98) (BE–15) (BE–43)
Only one door lock does not operate.	1. Door Lock Motor 2. Wire Harness	(BE–94)



POWER WINDOW MASTER SWITCH INSPECTION

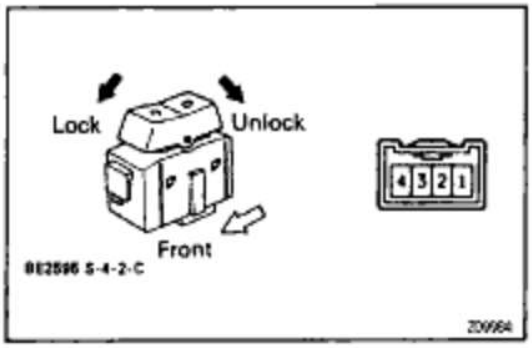
INSPECT POWER WINDOW MASTER SWITCH

Master Switch: Driver's Door Lock Manual Switch/ Continuity

Inspect the switch continuity between terminals.

Switch position	Tester connection to terminal number	Specified value
LOCK	1–2–4	Continuity
OFF	–	No continuity
UNLOCK	1–2–3	Continuity

If continuity is not as specified, replace the switch.



DOOR LOCK MANUAL SWITCH INSPECTION

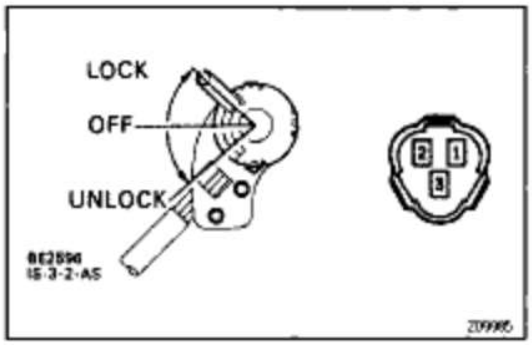
INSPECT DOOR LOCK MANUAL SWITCH

Continuity

Inspect the switch continuity between terminals.

Switch position	Tester connection to terminal number	Specified value
LOCK	3–4	Continuity
OFF	–	No continuity
UNLOCK	2–4	Continuity

If continuity is not as specified, replace the switch.



DOOR KEY LOCK AND UNLOCK SWITCH INSPECTION

INSPECT DOOR KEY LOCK AND UNLOCK SWITCH

Continuity

Inspect the switch continuity between terminals.

Switch position	Tester connection to terminal number	Specified value
LOCK	2–3	Continuity
OFF	–	No continuity
UNLOCK	1–2	Continuity

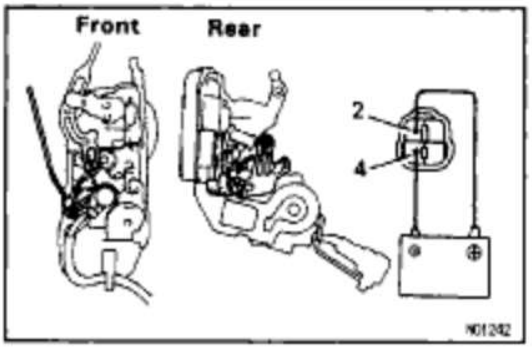
If continuity is not as specified, replace the switch.
HINT: Door key lock and unlock switch is built into the front door lock assembly.

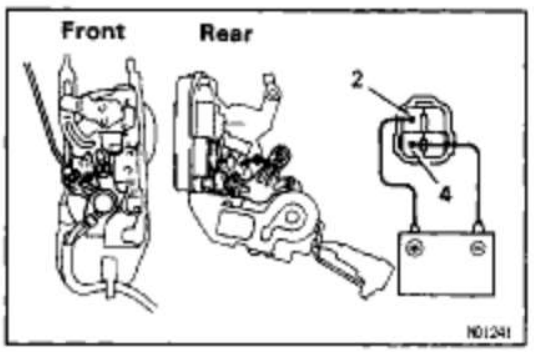
KEY UNLOCK WARNING SWITCH

See key confine prevention system on page BE–15.

DOOR COURTESY SWITCH

See open door warning system on page BE–43.





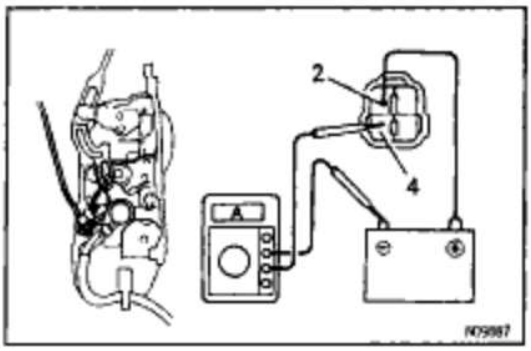
DOOR LOCK MOTOR INSPECTION (DOOR OPEN DETECTION SWITCH INSPECTION)

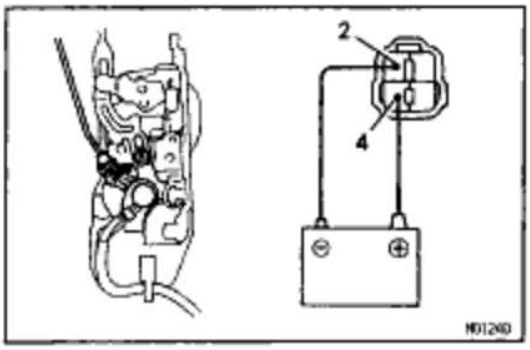
INSPECT DOOR LOCK MOTOR

Motor Operation

(a) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 4, check that the door lock link moves to UNLOCK position.

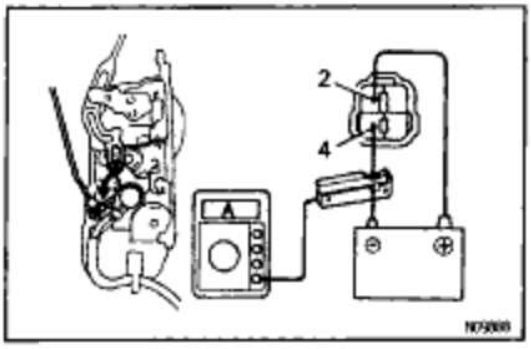
(b) Remove the polarity, check that the door lock link move to LOCK position.
If operation is not as specified, replace the door lock assembly.





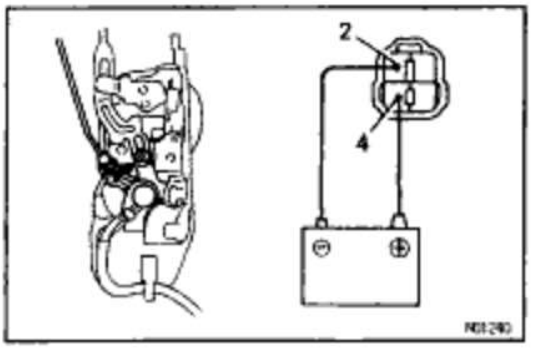
Ex. WAGON:
PTC THERMISTOR OPERATION
INSPECTION USING AN AMMETER

(a) Connect the positive (+) lead from the battery to terminal 2.
(b) Connect the positive (+) lead from the ammeter to terminal 4 and the negative (–) lead to battery negative (–) terminal, check that the current changes from approximately 3.2 ampere to less than 0.5 ampere with 20 to 70 seconds.
(c) Disconnect the leads from terminals.
(d) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 4 and the negative (–) lead to terminal 2 check that the door lock moves to LOCK position.
If operation is not as specified, replace the door lock assembly.

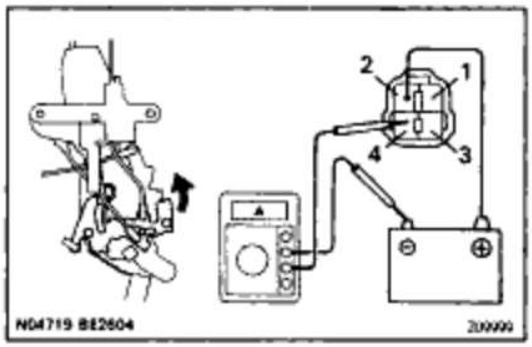


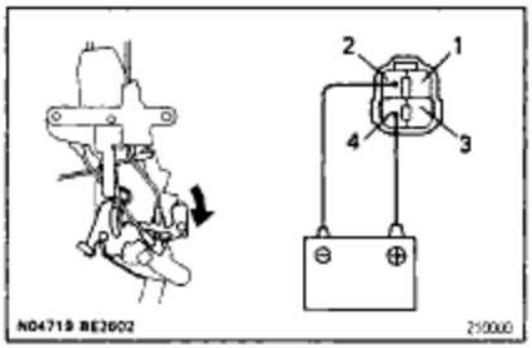
Ex. WAGON:
INSPECTION USING AN AMMETER WITH A CURRENT–MEASURING PROBE

(a) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 4.
(b) Attach a current–measuring probe to either the positive (+) lead or the negative (–) lead, check that the current changes from approximately 3.2 ampere to less than 0.5 ampere within 20 to 70 seconds.



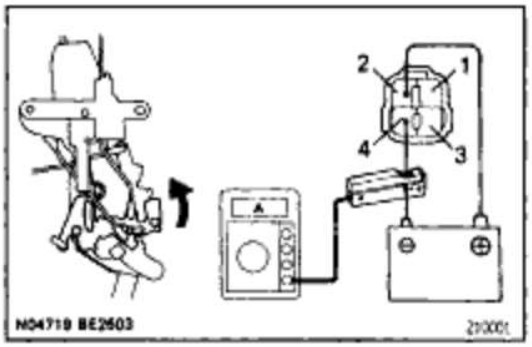
(c) Disconnect the leads from terminals.
(d) Approximately 60 seconds later, reverse the polarity, check that the door lock moves to LOCK position.
If operation is not as specified, replace the door lock assembly.





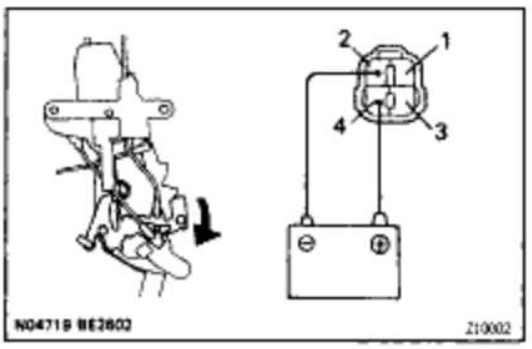
WAGON Only:
PTC THERMISTOR OPERATION
INSPECTION USING AN AMMETER

(a) Connect the positive (+) lead from the battery to terminal 2.
(b) Connect the positive (+) lead from the ammeter to terminal 4 and the negative (–) lead to battery nega–tive (–) terminal, check that the current changes from approximately 3.2 ampere to less than 0.5 ampere with 20 to 70 seconds.
(c) Disconnect the leads from terminals.
(d) Approximately 60 seconds later, connect the positive (+) lead from the battery to terminal 4 and the nega–tive (–) lead to terminal 2 check that the door lock moves to LOCK position.
If operation is not as specified, replace the door lock assembly.

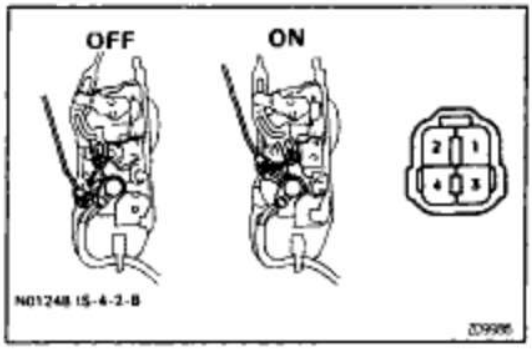


WAGON Only:
INSPECTION USING AN AMMETER WITH A CUR–RENT–MEASURING PROBE

(a) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 4.
(b) Attach a current–measuring probe to either the pos–itive (+) lead or the negative (–) lead, check that the current changes from approximately 3.2 ampere to less than 0.5 ampere within 20 to 70 seconds.



(c) Disconnect the leads from terminals.
(d) Approximately 60 seconds later, reverse the polarity, check that the door lock moves to LOCK position.
If operation is not as specified, replace the door lock assembly.



DOOR UNLOCK DETECTION SWITCH INSPECTION

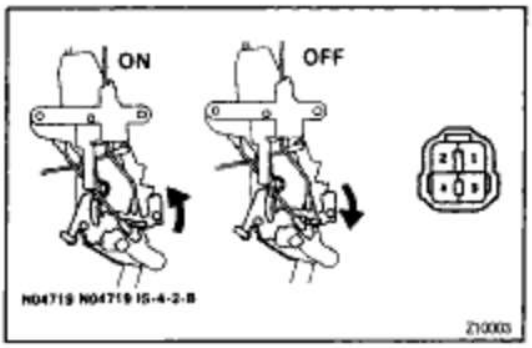
INSPECT DOOR UNLOCK DETECTION SWITCH

Continuity

Inspect the switch continuity between terminals.

Switch position	Tester connection to terminal number	Specified value
OFF (Door lock set to LOCK)	–	No continuity
ON (Door lock set to UNLOCK)	1–3	Continuity

If continuity is not as specified, replace the door lock assembly.



BACK DOOR UNLOCK DETECTION SWITCH INSPECTION

WAGON Only:

INSPECT BACK DOOR UNLOCK DETECTION SWITCH

Continuity

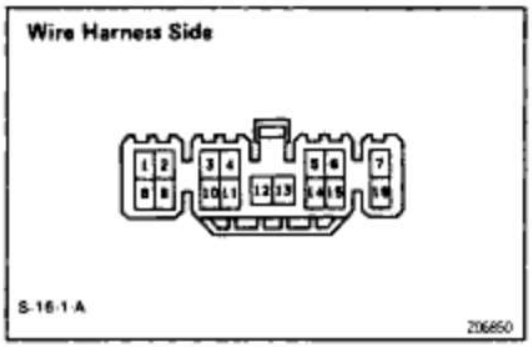
Inspect the switch continuity between terminals.

Switch position	Tester connection to terminal number	Specified value
OFF (Door lock set to LOCK)	–	No continuity
ON (Door lock set to UNLOCK)	1–3	Continuity

If continuity is not as specified, replace the door lock assembly.

POWER MAIN RELAY

See power main relay on page BE–89.



DOOR LOCK CONTROL RELAY INSPECTION

INSPECT DOOR LOCK CONTROL RELAY

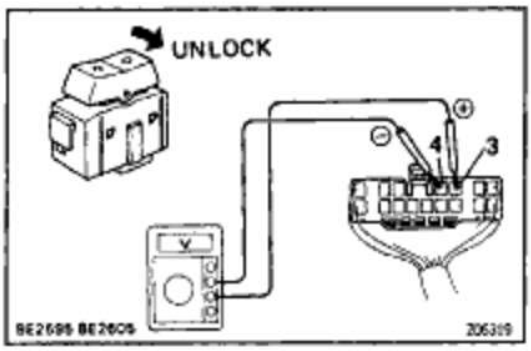
Relay Circuit

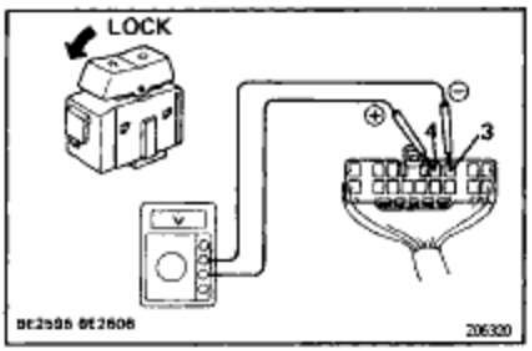
Disconnect the connector from the relay and inspect the connector on the wire harness side, as shown in the chart.

Tester connection to terminal number	Condition	Specified value (Continuity)
2 – Ground	Driver's door courtesy switch position OFF (Door closed)	No continuity
2 – Ground	Driver's door courtesy switch position ON (Door opened)	Continuity
5 – Ground	Passenger's Door Lock Switch position OFF (Door locked)	No continuity
5 – Ground	Passenger's Door Lock Switch position ON (Door unlocked)	Continuity
6 – Ground	Driver's Door Lock Switch position OFF (Doorlocked)	No continuity
6 – Ground	Driver's Door Lock Switch position ON (Door unlocked)	Continuity
7 – Ground	Key Unlock Warning Switch position OFF (Ignition Key Removed)	No continuity
7 – Ground	Key Unlock Warning Switch position ON (ignition Key Set)	Continuity
9 – Ground	Driver's Door Key Lock and Unlock Switch Position OFF or LOCK (Door key free or turned to lock)	No continuity
9 – Ground	Driver's Door Key Lock and Unlock Switch Position UNLOCK (Door key turned to unlock)	Continuity
10 – Ground	Door Lock Manual Switch Position OFF or UNLOCK	No continuity
10 – Ground	Door Lock Manual Switch Position LOCK	Continuity
11 – Ground	Door Lock Manual Switch Position OFF or LOCK	No continuity
11 – Ground	Door Lock Manual Switch Position UNLOCK	Continuity
12 – Ground	Passenger's Door Key Lock and Unlock Switch Position OFF or UNLOCK (Door key free or turned to unlock)	No continuity
12 – Ground	Passenger's Door Key Lock and Unlock Switch Position LOCK (Door key turned to lock)	Continuity

Tester connection to terminal number	Condition	Specified value (Continuity)
14 – Ground	Passenger's door courtesy switch position OFF (Door closed)	No continuity
14– Ground	Passenger's door courtesy switch position ON (Door opened)	Continuity
16 – Ground	Constant	Continuity
Tester connection to terminal number	Condition	Specified value (Voltage)
1 – Ground	Ignition switch position LOCK or ACC	No voltage
1 – Ground	Ignition switch position ON	Battery positive voltage
8 – Ground	Constant	Battery positive voltage

If circuit is as specified, inspect the door lock signal.
If the circuit is not as specified, inspect the circuits connected to other parts.





DOOR LOCK SIGNAL

HINT: When the relay circuit is as specified, inspect the door lock signal.

(a) Connect the connector to the relay.

(b) Connect the positive (+) lead from the voltmeter to terminal 3 and the negative (–) lead to terminal 4.

(c) Set the door lock manual switch to UNLOCK, check that the voltage rises from 0 volts to battery positive voltage for approximately 0.2 seconds.

(d) Reverse the polarity of the voltmeter leads.

(e) Set the door lock manual switch to LOCK, check that the voltage rises from 0 volts to battery positive voltage for approximately 0.2 seconds.
If operation is not as specified, replace the relay.

SLIDING ROOF SYSTEM

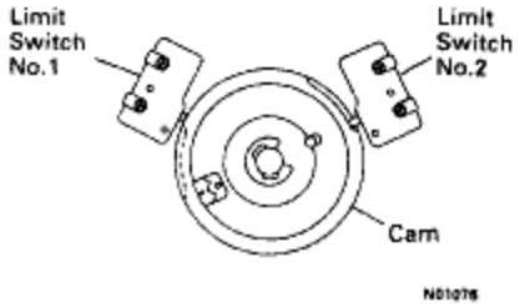
DESCRIPTION

Standby Operation

- Current flows from the DOME fuse to terminal 12 of the sliding roof control relay (hereafter called relay).
- When the ignition switch is ON, the current flows from the power main relay to terminal 6 of the relay.

Operation

1. Limit Switch operation



Roof Position		Fully Open	Momentary Stop		Fully Closed	Down	Up
Function		Sliding Period			Idling Period	Tilting Period	
Limit Switch No.1	ON						
	OFF						
Limit Switch No.2	ON						
	OFF						
Sliding Roof Control Switch	OPEN	○	○	○	○	×	
	CLOSE	○	○	○	×	×	
	UP	×	×	×	○	○	
	DOWN	×	×	×	×	○	

○: Operational ×: Non-operational

V02712

2. OPEN operation

When the switch on the 'OPEN' side of the control switch is pushed, continuity is produced between terminal 1 of the relay and body ground. Then the relay operates, the current flows through terminal6 of the relay –i terminal 5 –i terminal 1 of the sliding roof motor – terminal 3 –) terminal 4 of the relay – terminal 11 – the body ground, and the motor starts to run in order to open the sliding roof.

3. CLOSE operation

When the switch on the "CLOSE" side of the control switch is pushed, continuity is produced between terminal 2 of the relay and body ground. Then the relay operates, the current flows through terminal6 of the relay –i terminal 4 –r terminal 3 of the sliding roof motor –i terminal 1 – terminal 5 of the relay –i terminal 11 –i the body ground, and the motor starts to run in order to close the sliding roof.

Momentary Stop

When the sliding roof reaches about 200 mm (7.87 in.) short of the fully closed position, the limit switch No.1 is turned from ON to OFF, so there is no continuity between terminal 4 of the relay and body ground. As a result, the sliding roof stops at that position.

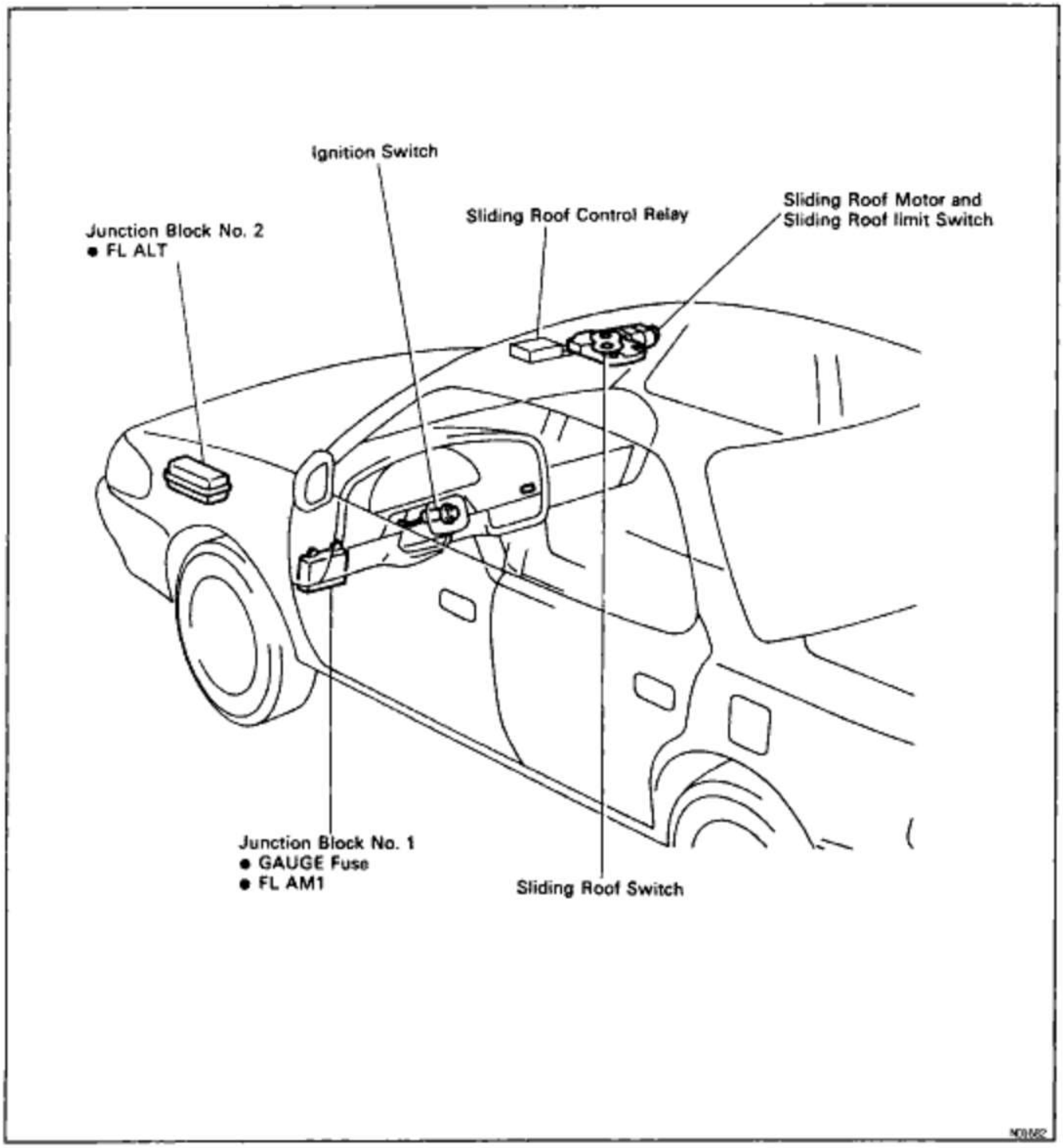
4. TILT UP operation

When the switch on the "UP" side of the control switch is pushed, continuity is produced between terminal 3 of the relay and body ground. Then the relay operates, the current flows through terminal6 of the relay –terminal 4 – terminal 3 of the sliding roof motor –i terminal 1 –i terminal 5 of the relay – terminal 11 – the body ground, and the motor starts to run in order to tilt up the sliding roof.

5. TILT DOWN operation

When the switch on the ”DOWN” side of the control switch is pushed, continuity is produced between terminal 7 of the relay and body ground. Then the relay operates, the current flows through terminal6 of the relay – terminal 5 –terminal 1 of the sliding roof motor –) terminal 3 –) terminal 4 of the relay – terminal 11 – the body ground, and the motor starts to. run in order to tilt down the sliding roof.

PARTS LOCATION

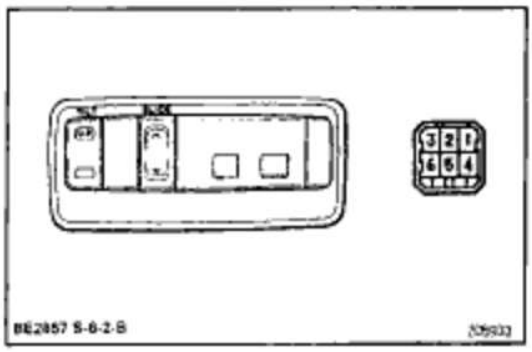


TROUBLESHOOTING

The table below will be useful for you in troubleshooting these electrical problems. The most likely causes of the malfunction are shown in the order of their probability. Inspect each part in the order shown, and replace the part when it is found to be faulty.

Trouble	Parts name	(See page)
*1 Sliding roof system does not operate.	1. ALT H –Fuse 2. P/W M – Fuse 3. Wire Harness	(BE–4) (BE–4)
*2 Sliding roof system does not operate.	1. GAUGE Fuse 2. Ignition Switch 3. P/W M –Fuse 4. Power Main Relay 5. Sliding Roof Switch 6. Sliding Roof Control Relay 7. Sliding Roof Motor 8. Wire Harness	(BE–4) (BE–14) (BE–4) (BE–89) (BE–103) (BE–104) (BE–103)
Sliding roof system operates abnormally.	1. Sliding Roof Control Relay 2. Limit Switch 3. Sliding Roof Switch	(BE–104) (BE–105) (BE–103)
Sliding roof system stops operation half way.	1. Sliding Roof Control Relay 2. Limit Switch 3. Sliding Roof Switch 4. Sliding Roof Motor (Stones to foreign material trapped in motor assembly)	(BE–104) (BE–105) (BE–103) (BE–103)
”Key–off Sliding Roof” operation does not operate.	1. DOME Fuse 2. GAUGE Fuse 3. Ignition Switch 4. Door Open Detection Switch 5. Wire Harness	(BE–4) (BE–4) (BE–14) (BE–94)

*1: Door– Lock does not operate.
*2: Door– Lock is normal.



SLIDING ROOF SWITCH INSPECTION

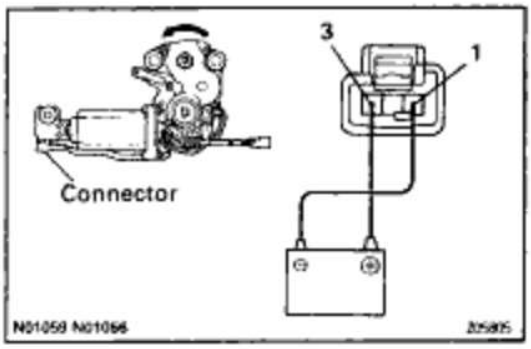
INSPECT SLIDING ROOF SWITCH

Continuity

Inspect the switch continuity between terminals.

Switch position	Tester connection to terminal number	Specified value
SLIDE OPEN	3–4	Continuity
SLIDE OFF	–	No continuity
SLIDE CLOSE	4–6	Continuity
TILT DOWN	2–4	Continuity
TILT OFF	–	No continuity
TILT UP	4–5	Continuity

If continuity is not as specified, replace the switch.

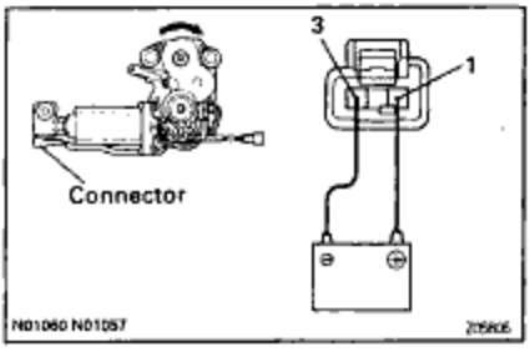


SLIDING ROOF MOTOR INSPECTION

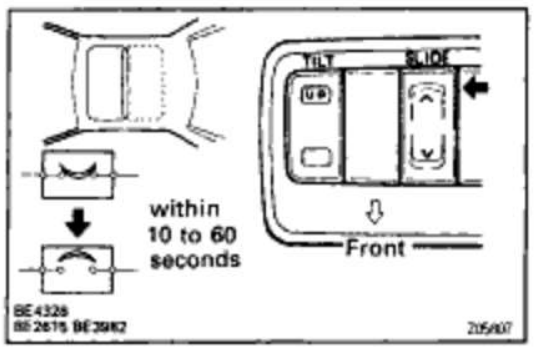
INSPECT SLIDING ROOF MOTOR

Motor Operation

(a) Connect the positive (+) lead from the battery to terminal 3 and the negative (–) lead to terminal 1, check that the motor turns to counterclockwise (moves of the close side).

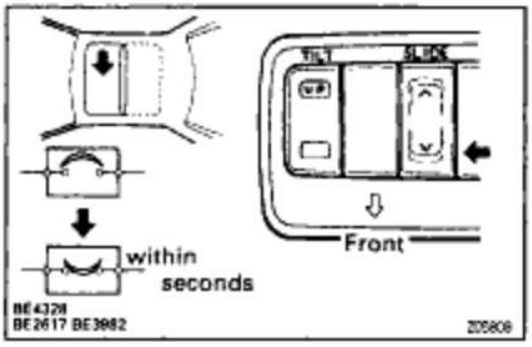


(b). Reverse the polarity, check that the motor turns to clockwise (moves to the open side).
If operation is not as specified, replace the motor.

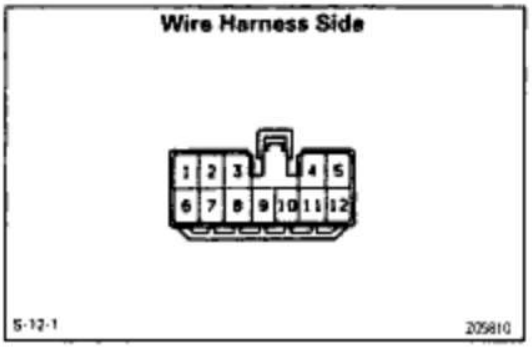


Circuit Breaker operation

(a) With the sliding roof in the fully opened position, hold the sliding roof switch in ”OPEN” position and check that there is a circuit breaker operation noise within 10 to 60 seconds.



(b) With the sliding roof in fully opened position, hold the sliding roof switch in "CLOSE" position and check that the sliding roof begins to close within 60 seconds. If operation is not as specified, replace the motor.



SLIDING ROOF CONTROL RELAY INSPECTION

INSPECT SLIDING ROOF CONTROL RELAY

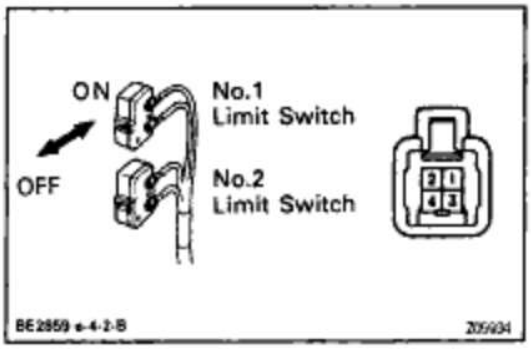
Circuit

Disconnect the connector from the relay and inspect the connector on the wire harness side, as shown in the chart.

Tester connection to terminal number	Condition	Specified value (Continuity)
1 – Ground	Sliding roof control switch position (SLIDE) OFF or CLOSE	No continuity
1 – Ground	Sliding roof control switch position (SLIDE) OPEN	Continuity
2 – Ground	Sliding roof control switch position (SLIDE) OFF or OPEN	No continuity
2 – Ground	Sliding roof control switch position (SLIDE) CLOSE	Continuity
3 – Ground	Sliding roof control switch position (TILT) OFF or DOWN	No continuity
3 – Ground	Sliding roof control switch position (TILT) UP	Continuity
4 – Ground	Constant	No continuity
4 – 5	Constant	Continuity
5 – Ground	Constant	No continuity
7 – Ground	Sliding roof control switch position (TILT) OFF or UP	No continuity
7 – Ground	Sliding roof control switch position (TILT) DOWN	Continuity
8 – Ground	No. 1 limit switch position OFF (Sliding roof tilted up or open approx. 200 mm (7.87in.))	No continuity
8 – Ground	No. 1 limit switch position ON (Except for conditions mentioned above)	Continuity
9 – Ground	No. 2 limit switch position OFF (Sliding roof closed)	No continuity
9 – Ground	No. 2 limit switch position ON (Sliding roof open)	Continuity

11 – Ground	Constant	Continuity
Tester connection to terminal number	Condition	Specified value (Voltage)
6 – Ground	Ignition switch position LOCK or ACC	*No voltage
6 – Ground	Ignition switch position ON	Battery positive voltage
12 – Ground	Constant	Battery positive voltage

*: Exceptions: During 60 second period after ignition switch ON – OFF (ACC) or until driver or passenger door is opened after ignition switch ON –OFF (ACC). If circuit is as specified, replace the relay.



LIMIT SWITCH INSPECTION

BE1BA–01

INSPECT LIMIT SWITCH

Continuity

Inspect the switch continuity between terminals.

Switch position	Tester connection to terminal number	Specified value
No. 1 limit switch OFF (SW pin released)	–	No continuity
No. 1 limit switch ON (SW pin pushed in)	1–4	Continuity
No.2 limit switch OFF (SW pin released)	–	No continuity
No.2 limit switch ON (SW pin pushed in)	2–4	Continuity

If continuity is not as specified, replace the switch.

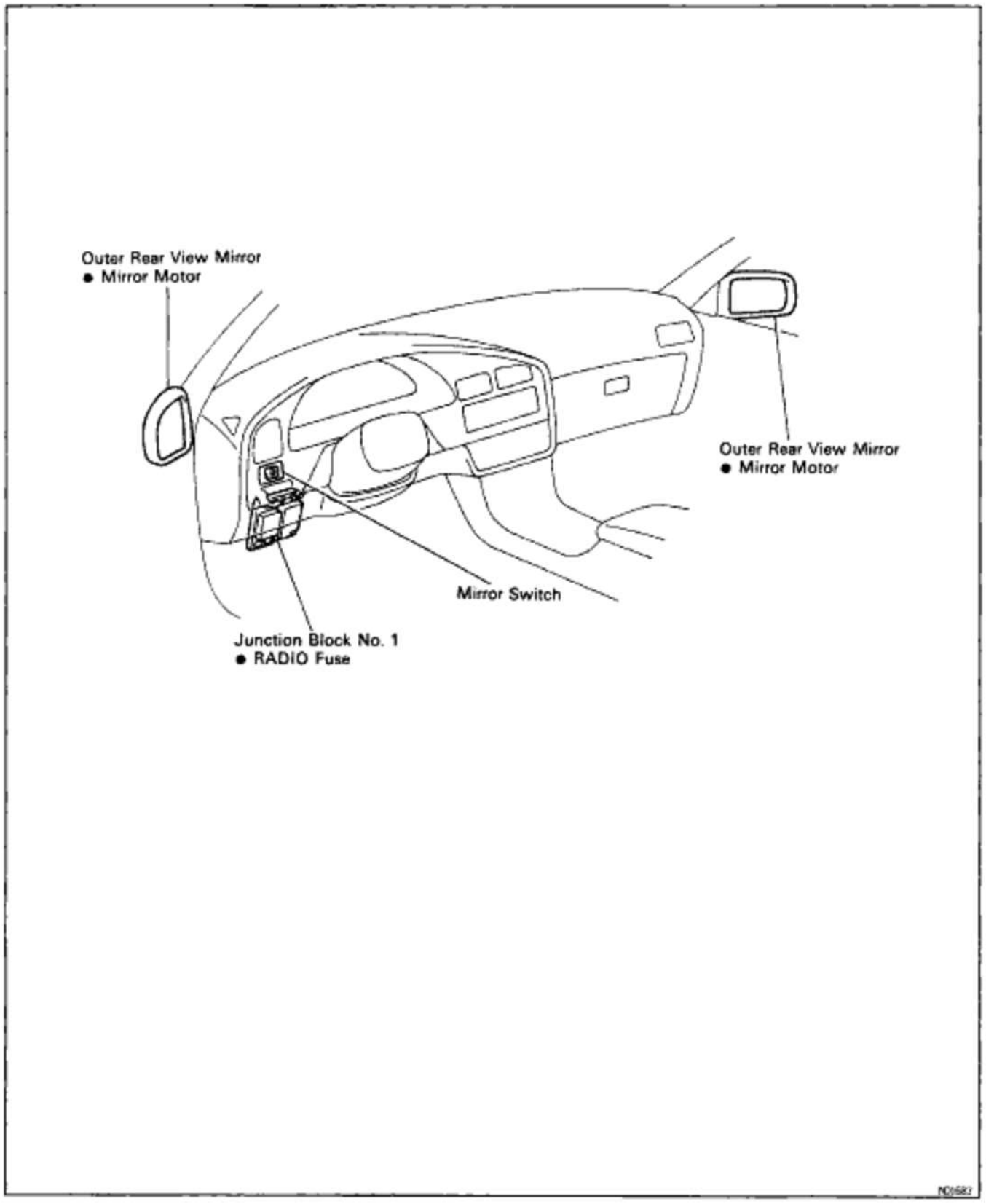
DOOR OPEN DETECTION SWITCH

See page BE–94.

POWER MAIN RELAY

See Power Main Relay on page BE–89.

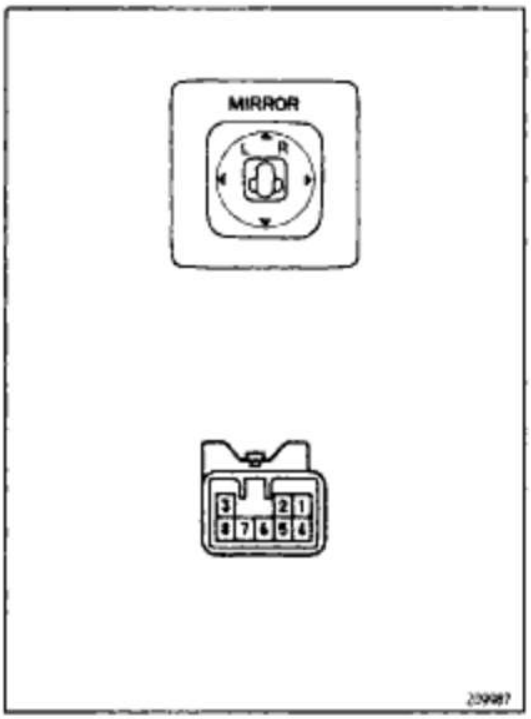
POWER MIRROR CONTROL SYSTEM
PARTS LOCATION



TROUBLESHOOTING

The table below will be useful for you in troubleshooting these electrical problems. The most likely causes of the malfunction are shown in the order of their probability. Inspect each part in the order shown, and replace the part when it is found to be faulty.

Trouble	Parts name	(see page)
Mirror does not operate.	1. RADIO Fuse 2. Mirror Switch 3. Mirror Motor 4. Wire Harness	(BE–4) (BE–108) (BE–109)
Mirror operates abnormally.	1. Mirror Switch 2. Mirror Motor 3. Wire Harness	(BE–108) (BE–109)



MIRROR SWITCH INSPECTION

INSPECT MIRROR SWITCH

Continuity

Inspect the switch continuity between terminals.

LEFT SIDE

Switch position	Tester connection to terminal number	Specified value
OFF	–	No continuity
UP	2 – 5 6 – 8	Continuity
DOWN	2 – 6 5 – 8	Continuity
LEFT	1 – 8 2 – 5	Continuity
RIGHT	1 – 2 5 – 8	Continuity

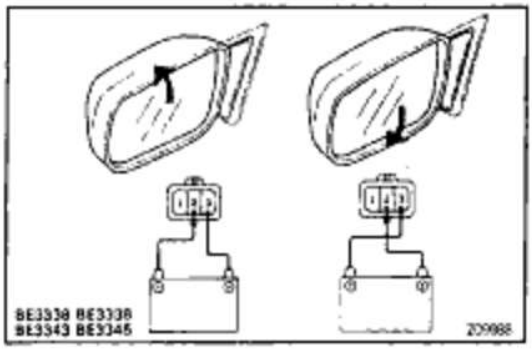
OFF

Switch position	Tester connection to terminal number	Specified value
OFF	–	No continuity
UP	2 – 5	Continuity
DOWN	5 – 8	Continuity
LEFT	2 – 5	Continuity
RIGHT	5 – 8	Continuity

RIGHT SIDE

Switch position	Tester connection to terminal number	Specified value
OFF	–	No continuity
UP	2 – 5 3 – 8	Continuity
DOWN	2 – 3 5 – 8	Continuity
LEFT	2 – 5 7 – 8	Continuity
RIGHT	2 – 7 5 – 8	Continuity

If continuity is not as specified, replace the switch.



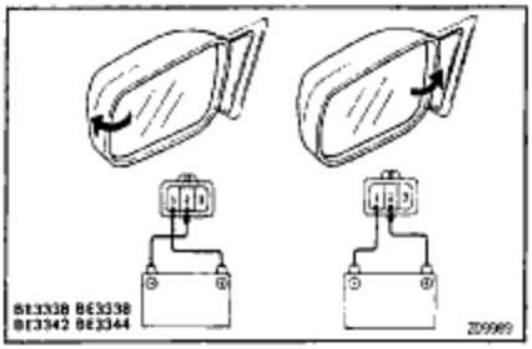
MIRROR MOTOR INSPECTION

INSPECT MIRROR MOTOR

Operation

(a) Connect the positive (+) lead from the battery to terminal 3 and negative (–) lead to terminal 2, check that the mirror turns upward.

(b) Reverse the polarity, check that the mirror turns to downward.



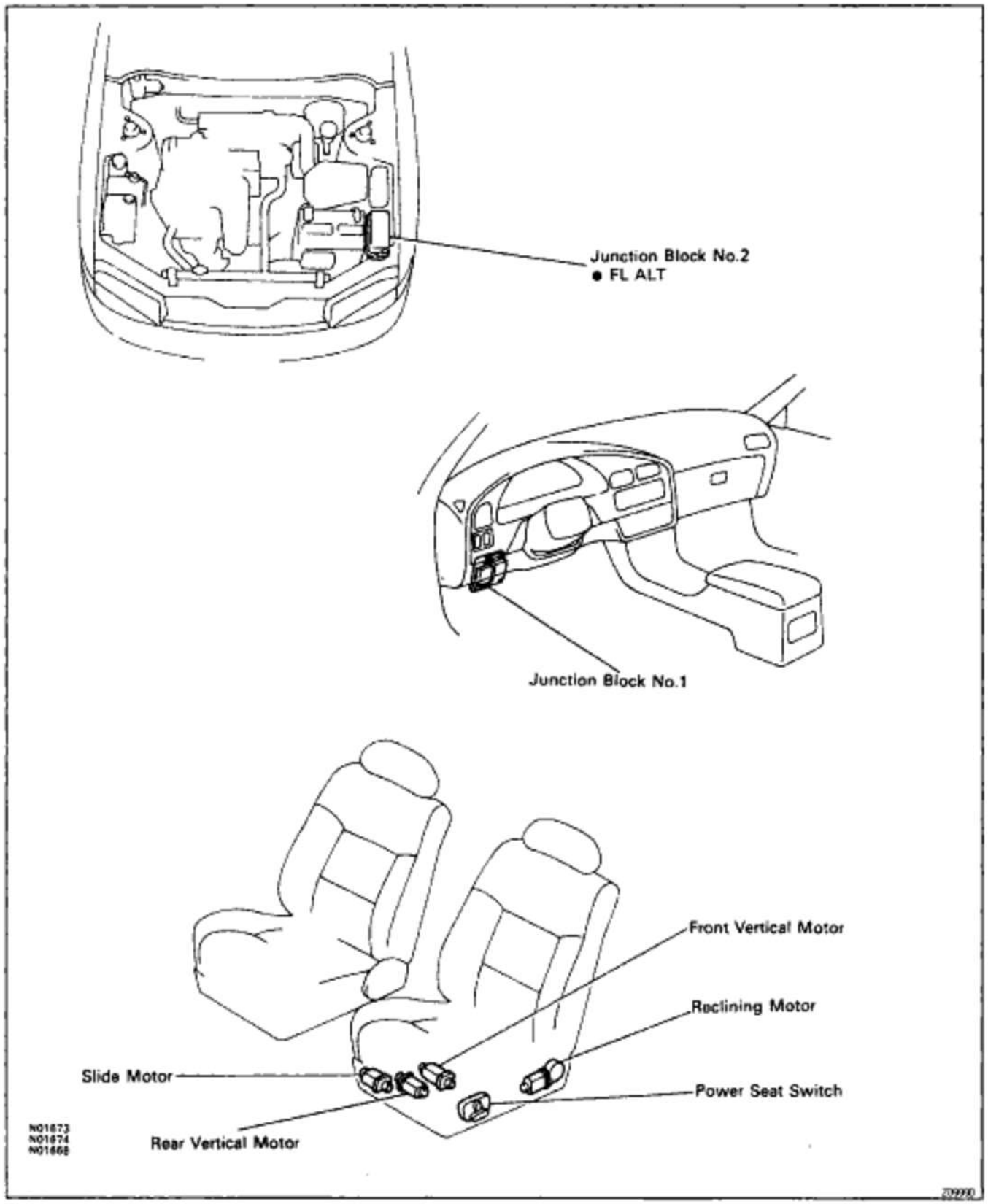
(c) Connect the positive (+) lead from the battery to terminal 1 and negative (–) lead to terminal 2, check that the mirror turns to left side.

(d) Reverse the polarity, check that the mirror turns to right side.

If operation is not as specified, replace the mirror.

POWER SEAT CONTROL SYSTEM

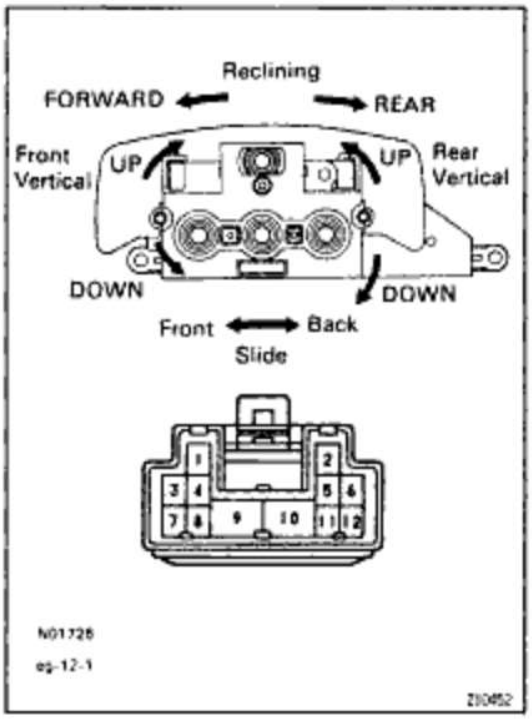
PARTS LOCATION



TROUBLESHOOTING

The table below will be useful for you in troubleshooting these electrical problems. The most likely causes of the malfunction are shown in the order of their probability. Inspect each part in the order shown, and replace the part when it is found to be faulty.

Trouble	Parts name	(See page)
Power seat does not operate. (Door lock system does not operate)	1. ALT H –Fuse 2. Wire Harness 3. P/W M –Fuse	(BE–4) (BE–4)
Power seat does not operate. (Door lock system is normal)	1. P/W M –Fuse 2. Wire Harness 3. Power Seat Switch	(BE–4) (BE–112)
"Slide operation" does not operate.	1. Power Seat Switch 2. Wire Harness 3. Slide Motor	(BE–112) (BE–113)
"Front Vertical Operation" does not operate.	1. Power Seat Switch 2. Wire Harness 3. Front Vertical Motor	(BE–112) (BE–113)
"Rear Vertical Operation" does not operate.	1. Power Seat Switch 2. Wire Harness 3. Rear Vertical Motor	(BE–112) (BE–114)
"Reclining Operation" does not operate.	1. Power Seat Switch 2. Wire Harness 3. Reclining Motor	(BE–112) (BE–115)



POWER SEAT SWITCH INSPECTION

INSPECT POWER SEAT SWITCH

Continuity

Inspect the switch continuity between terminals.

SLIDE SWITCH

Switch position	Tester connection to terminal number	Specified value
FRONT	5–10 8–9	Continuity
OFF	5–9 8–9	Continuity
BACK	5–9 8–10	Continuity

FRONT VERTICAL SWITCH

Switch position	Tester connection to terminal number	Specified value
UP	10–12 4–11	Continuity
OFF	4–11 4–12	Continuity
DOWN	4–12 10–11	Continuity

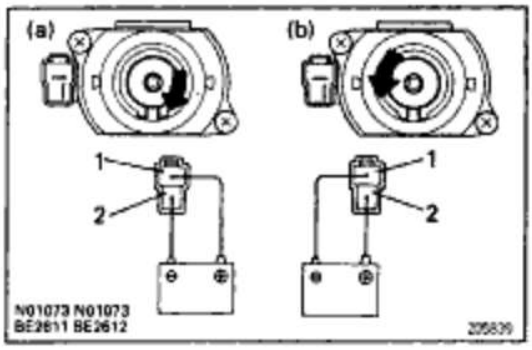
REAR VERTICAL SWITCH

Switch position	Tester connection to terminal number	Specified value
UP	2–10 6–7	Continuity
OFF	2–7 6–7	Continuity
DOWN	2–7 6–10	Continuity

RECLINING SWITCH

Switch position	Tester connection to terminal number	Specified value
FORWARD	4–10 7–9	Continuity
OFF	4–9 7–9	Continuity
REAR	4–9 7–10	Continuity

If continuity is not as specified, replace the switch.



SLIDE MOTOR INSPECTION

INSPECT SLIDE MOTOR

Operation

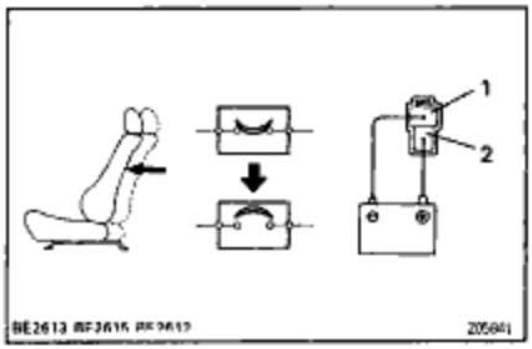
(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2, check that the motor turns clockwise.

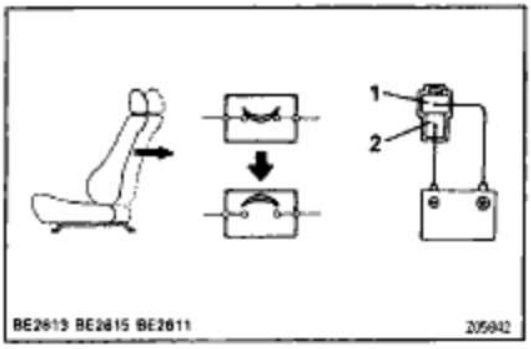
(b) Reverse the polarity, check that the motor turns counterclockwise.

If operation is not as specified, replace the motor.

Circuit Breaker Operation

(a) Connect the positive (+) lead from the battery to terminal 2 and negative (–) lead to terminal 1 on the slide motor connector, and move the seat front end position.

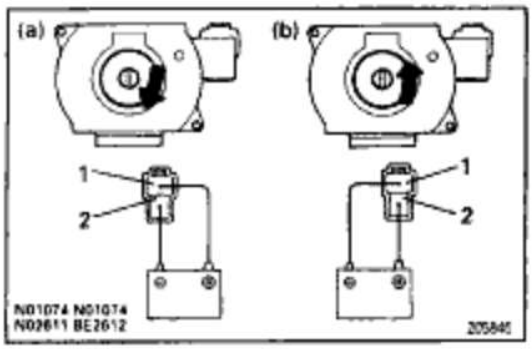




(b) Continue to apply voltage, check that there is a circuit breaker operation noise within 3 to 60 seconds.

(c) Reverse the polarity, check that the seat begins to move backwards within approximately 60 seconds.

If operation is not as specified, replace the motor.



FRONT VERTICAL MOTOR INSPECTION

INSPECT FRONT VERTICAL MOTOR

Operation

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2, check that the motor turns clockwise.

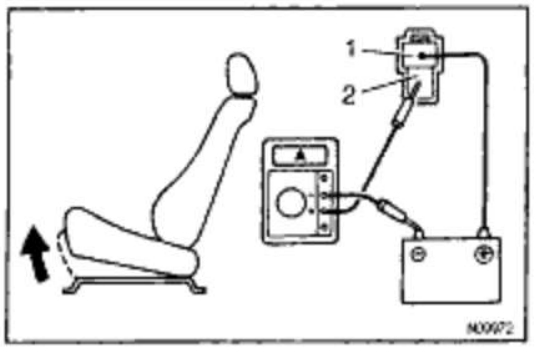
(b) Reverse the polarity, check that the motor turns counterclockwise.

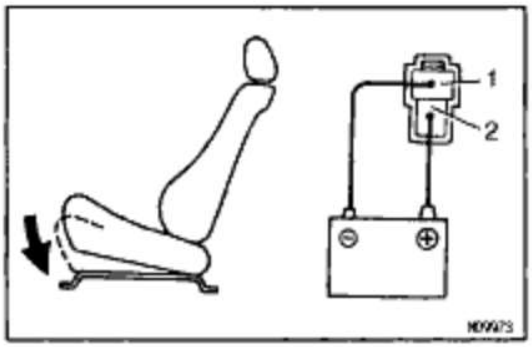
If operation is not as specified, replace the motor.

PTC Thermistor Operation / Driver's Seat

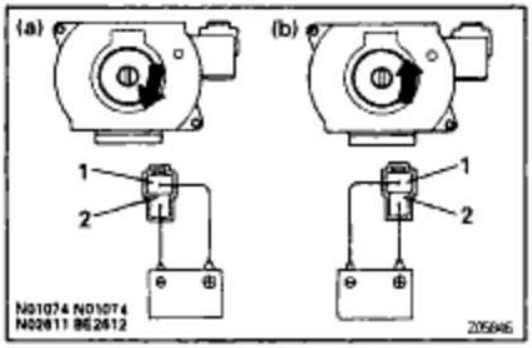
(a) Connect the positive (+) lead from the battery to terminal 1, the positive (+) lead from the ammeter to terminal 2 and the negative (–) lead to battery negative (–) terminal, and move the front edge of seat cushion to the highest position.

(b) Continue to apply voltage, check the current changes to less than 1 ampere with 4 to 90 seconds.





(c) Disconnect the leads from terminals.
(d) Approximately 60 seconds later, connect the positive (+) lead from battery to terminal 2 and the negative (–) lead to terminal 1, check that the seat cushion begins to descend.
If operation is not as specified, replace the motor.



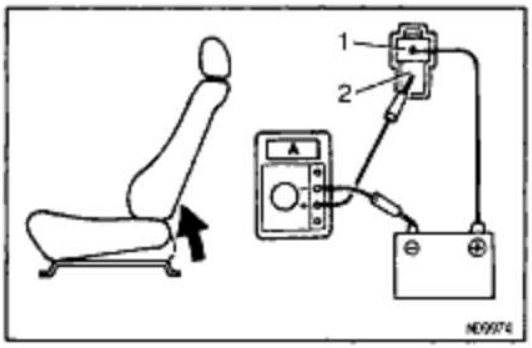
REAR VERTICAL MOTOR INSPECTION

INSPECT REAR VERTICAL MOTOR

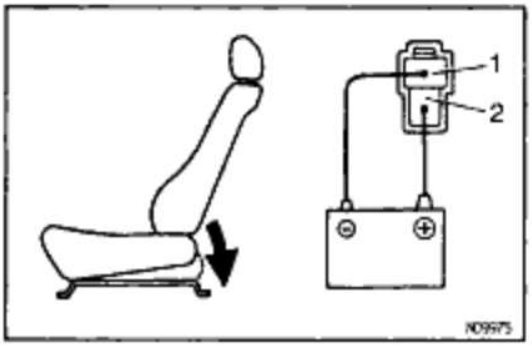
Operation

(a) Connect the positive (+) lead from the battery to terminal 1 and negative (–) lead to terminal 2, check that the motor turns clockwise.
(b) Reverse the polarity, check that the motor turns coun–terclockwise.
If operation is not as specified, replace the motor.

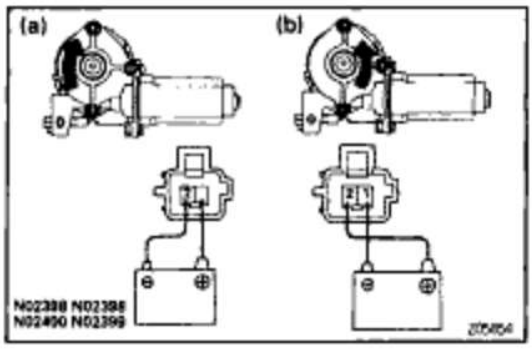
PTC Thermistor Operation / Driver's seat

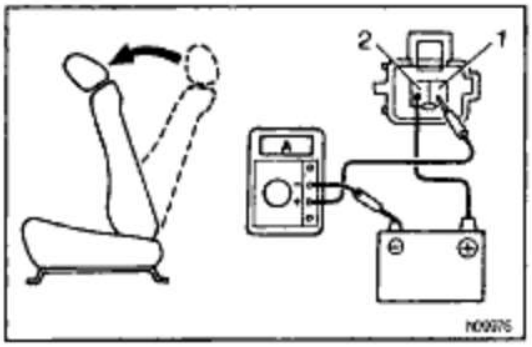


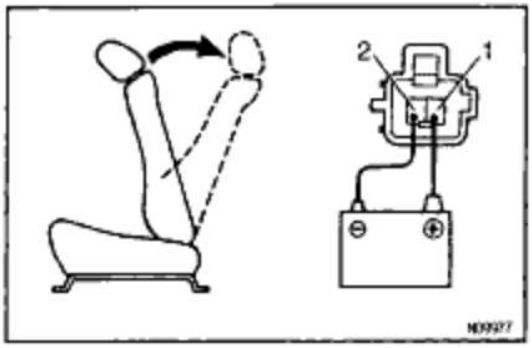
(a) Connect the positive (+) lead from the battery to terminal 1, the positive (+) lead from the ammeter to terminal 2 and the negative (–) lead to battery nega–tive (–) terminal, and move the rear edge of seat cushion to the highest position.
b) Continue to apply voltage, check the current changes to less than 1 ampere with 4 to 90 seconds.



(c) Disconnect the leads from terminals.
(d) Approximately 60 seconds later, connect the positive (+) lead from battery to terminal 2 and the negative (–) lead to terminal 1, check that the seat cushion begins to descend.
If operation is not as specified, replace the motor.







RECLINING MOTOR INSPECTION (Except 2–door)

INSPECT RECLINING MOTOR

Operation

(a) Connect the positive (+) lead from the battery to terminal 1 and negative (–) lead to terminal 2, check that the motor turns clockwise.

(b) Reverse the polarity, check that the motor turns coun–terclockwise.

If operation is not as specified, replace the motor.

PTC Thermistor Operation/ Driver's Seat

(a) Connect the positive (+) lead from the battery to terminal 2, the positive (+) lead from the ammeter to terminal 1 and the negative lead to battery negative (–) terminal, and recline the seat back to the most forward position.

(b) Continue to apply voltage , check the current change to less than 1 ampere with 4 to 90 seconds.

(c) Disconnect the lead from terminals.

(d) Approximately 60 seconds later, connect the positive (+) lead from battery to terminal 1 and the negative (–) lead to terminal 2, check that the seat back starts to fall backwards.

If operation is not as specified, replace the motor.

AUDIO SYSTEM

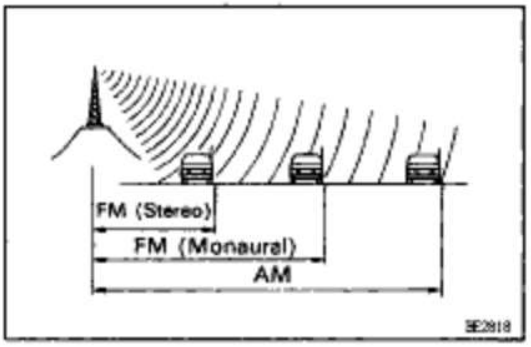
SYSTEM DESCRIPTION

1. RADIO WAVE BAND

The radio wave bands used in radio broadcasting are as follows:

Frequency	30 kHz	300kHz	3 MHz	30 MHz	300 MHz
Designation	LF	MF	HF	VHF	
Radio wave		AM ← →		FM ← →	
Modulation method	Amplitude modulation			Frequency modulation	

LF: low Frequency MF: Medium Frequency HF: High Frequency VHF: Very High Frequency



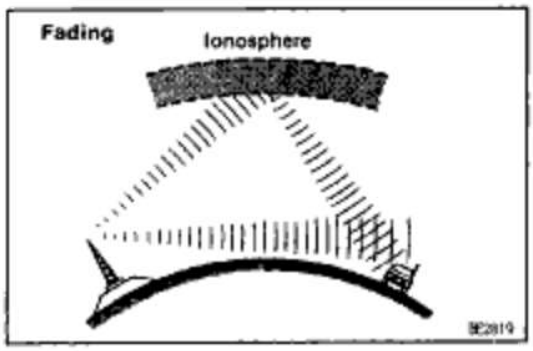
2. SERVICE AREA

There are great differences in the size of the service area for AM, FM monaural, and FM stereo broadcasts cannot be received even though AM comes in very clearly.

Not only does FM stereo have the smallest service area, but it also picks up static and other types of interference (”noise”) easily.

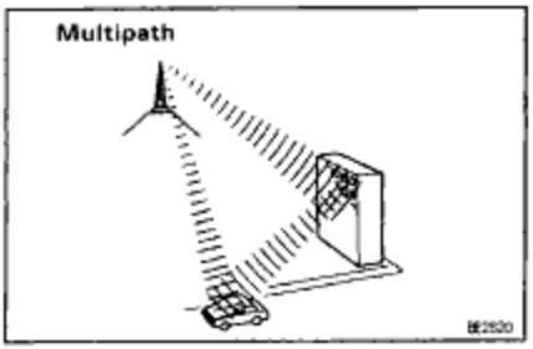
3. RECEPTION PROBLEMS

Besides the problem of static, there are also the prob–lems called ”fading”, ”rnultipath” and ”fade out”. These problems are caused not by electrical noise but by the nature of the radio waves themselves.



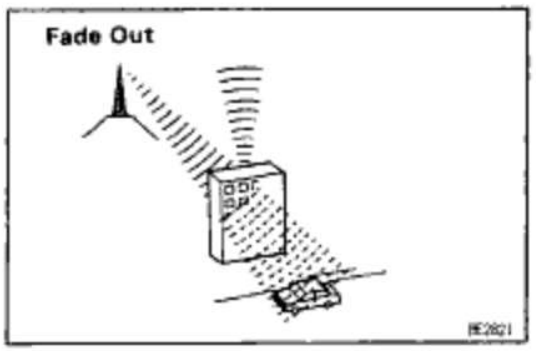
Fading

Besides electrical interference, AM broadcasts are also susceptible to other types of interference, espe–cially at night. This is because AM radio waves bounce off the ionosphere at night. These radio waves then interfere with the signals from the same trans–mitter that reach the vehicle’s antenna directly. This type of interference is called ”fading”.



Multipath

One type of interference caused by the bouncing of radio waves off of obstructions is called ”multipath”. Multipath occurs when a signal from the broadcast transmitter antenna bounces off buildings and moun–tains and interferes with the signal that is received directly



Fade Out

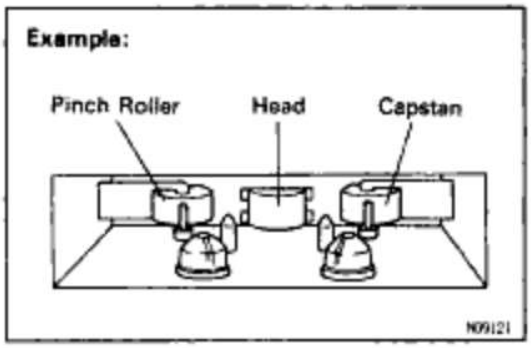
Because FM radio waves are of higher frequencies than AM radio waves, they bounce off buildings, mou–ntains, and other obstructions. For this reason, FM signals often seem to gradually disappear or fade away as the vehicle goes behind a building or other obstruction. This is called ”fade out”.

4. COMPACT DISC PLAYER

Compact Disc (hereafter called ”CD”) Players use a laser beam pick–up to read the digital signals recor–ded on the CD and reproduce analog signals of the music, etc. There are 4.7 in. (12 cm) and 3.2 in. (8 cm) discs in the CD player.

HINT: Never attempt to disassemble or oil any part of the player unit. Do not insert any object other than a disc into the magazine.

NOTICE: CD players use an invisible laser beam which could cause hazardous radiation exposure. Be sure to operate the player correctly as instructed.

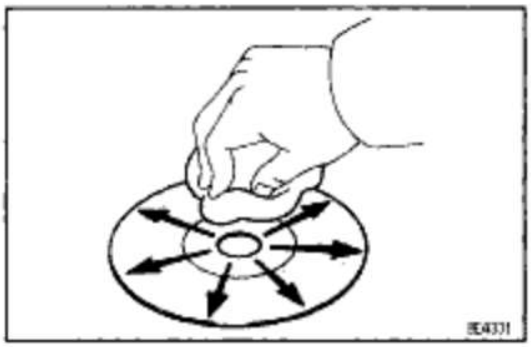


MAINTENANCE

Tape Player/Head Cleaning

(a) Raise the cassette door with your finger.
Next using a pencil or like object, push in the guide.

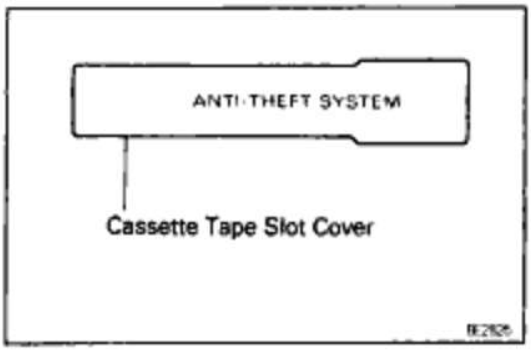
(b) Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, punch rollers and capstans.



CD Player/Disc Cleaning

If the disc gets dirty, clean the disc by wiping the surfaces from the center to outside in the radial direc–tions with a soft cloth.

NOTICE: Do not use a conventional record cleaner or anti–static preservative.



ANTI–THEFT SYSTEM

HINT: The words ”ANTI–THEFT SYSTEM” are dis–played on the cassette tape slot cover.
For operation instructions for the anti–theft system, please consult the audio system section in the Owner’s Manual (hereafter called O/M).

1. SETTING SYSTEM

The system is in operation once the customer has pushed the required buttons and entered the custom–er–selected 3–digit ID number.
(Refer to the O/M section, ”Setting the anti–theft system”)
HINT:

- When the audio system is shipped the ID number has not been input, so the anti–theft system is not in operation.
- If the ID number has not been input, the audio system remains the same as a normal audio system.

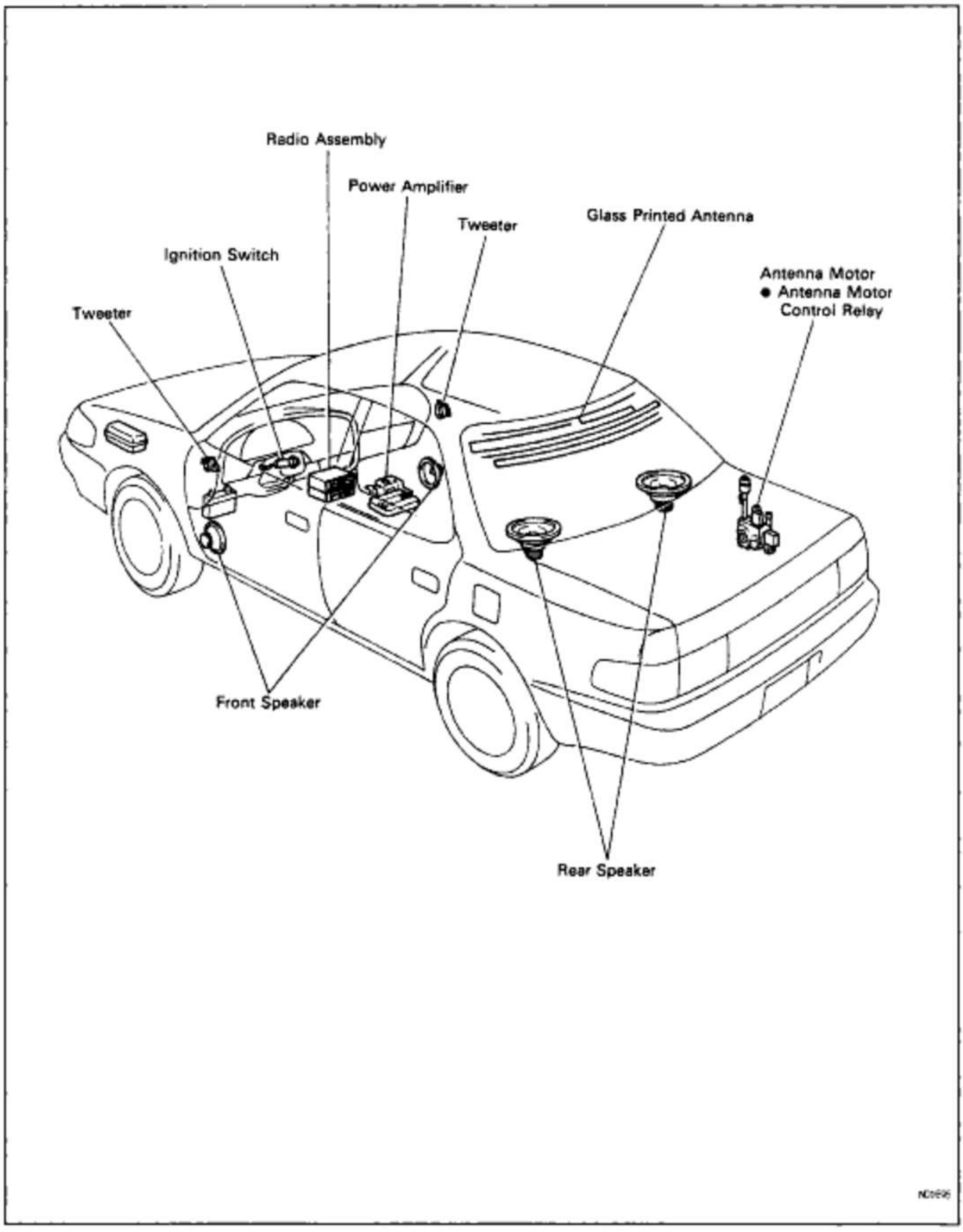
2. ANTI–THEFT SYSTEM OPERATION

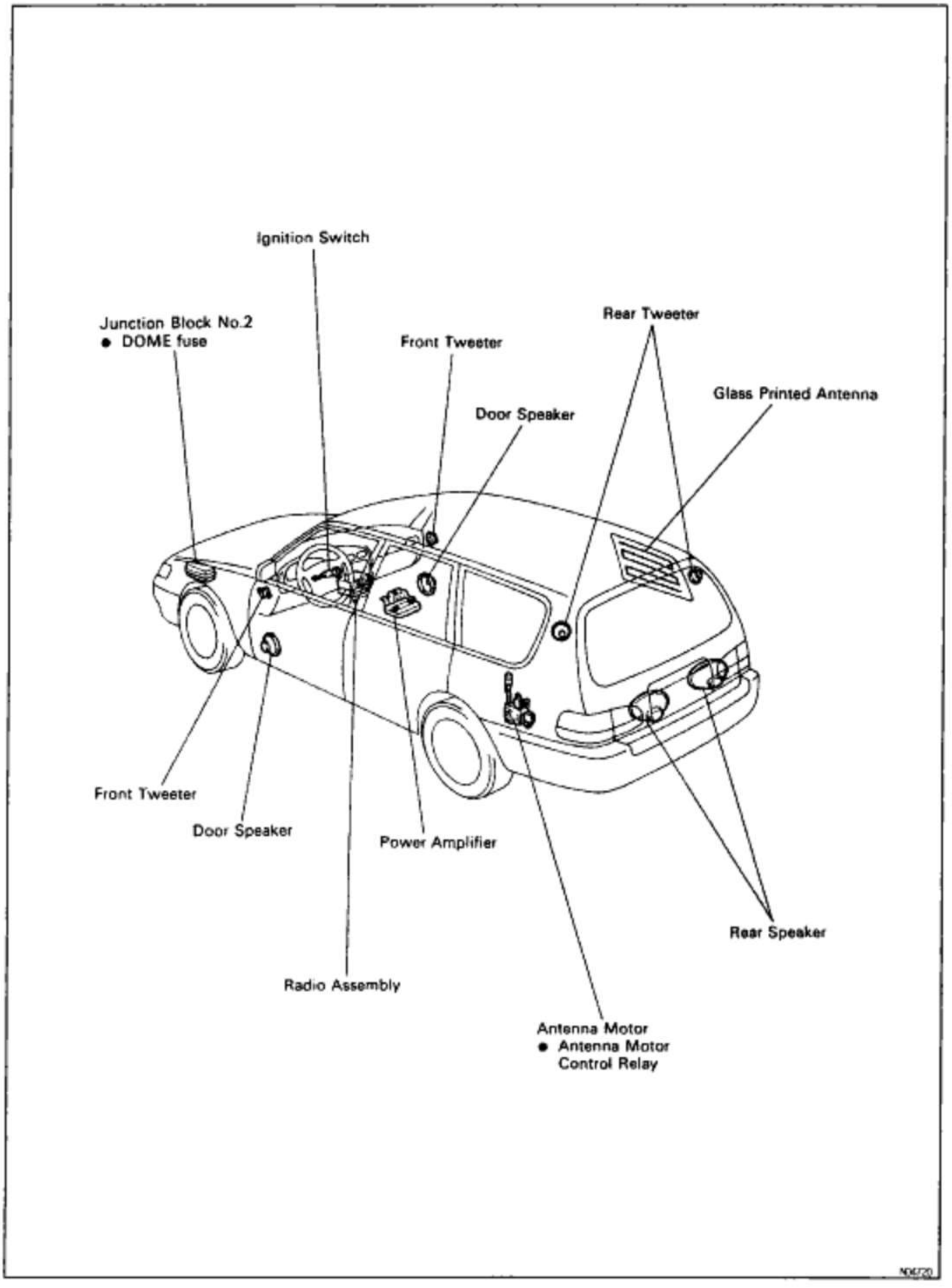
If the normal electrical power source (connector or battery terminal) is cut off, the audio system becomes inoperable, even if the power supply resumes.

3. CANCELLING SYSTEM

The ID number chosen by the customer is input to cancel the anti–theft system.
(Refer to the O/M section, ’if the system is activated”)
HINT: To change or cancel the ID number, please refer to the 0/M section ”Cancelling the system”.

PARTS LOCATION




Ignition Switch
Junction Block No.2
● DOME fuse
Front Tweeter
Rear Tweeter
Door Speaker
Glass Printed Antenna
Front Tweeter
Door Speaker
Power Amplifier
Rear Speaker
Radio Assembly
Antenna Motor
● Antenna Motor Control Relay

TROUBLESHOOTING

NOTICE: When replacing the internal mechanism (ECU part) of the audio system, be careful that no part of your body or clothing comes in contact with the terminals of the leads from the IC etc. of the replacement part (spare part),

HINT: This inspection procedure is a simple troubleshooting which should be carried out on the vehicle during system operation and was prepared on the assumption of system component troubles (except for the wires and connectors, etc.).

Always inspect the trouble taking the following items into consideration.

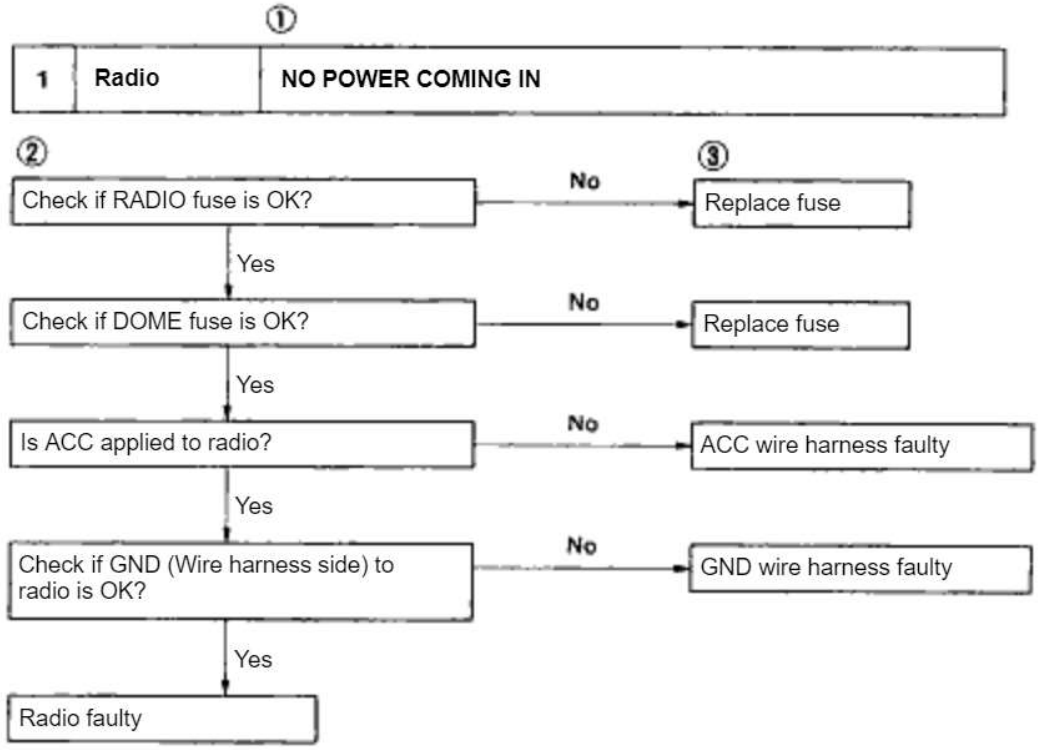
- Open or short circuit of the wire harness
- Connector or terminal connection fault

Problem		No.
Radio	Radio not operating when power switch turned to "ON'.	1
	Display indicates when power switch turned to 'ON', but no sound (including 'noise') is produced.	2
	Noise present, but AM–FM not operating.	3
	Any speaker does not work.	4
	Reception poor.	5
	Sound quality poor.	6
	Preset memory disappears.	7
Tape player	Cassette tape cannot be inserted.	8
	Cassette tape inserts, but no power	9
	Power coming in, but tape player not operating.	10
	Any speaker does not work.	11
	Sound quality poor.	12
	Tape jammed, malfunction with tape speed or auto–reverse	13
	Cassette tape will not eject.	14
CD Player	CD cannot be inserted.	15
	C D inserts, but no power	16
	Power coming in, but CD player not operating.	17
	Sound jumps.	18
	Sound quality poor (Volume faint).	19
	Any speaker does not work.	20
	CD will not eject.	21
Antenna	Antenna–related.	22
Noise	Noise produced by vibration or shock white driving.	23
	Noise produced when engine starts.	24

The term"AM" includes LW, MW and SW, and the term "FW" includes UKW.

HOW TO USE DIAGNOSTIC CHART

Reference:

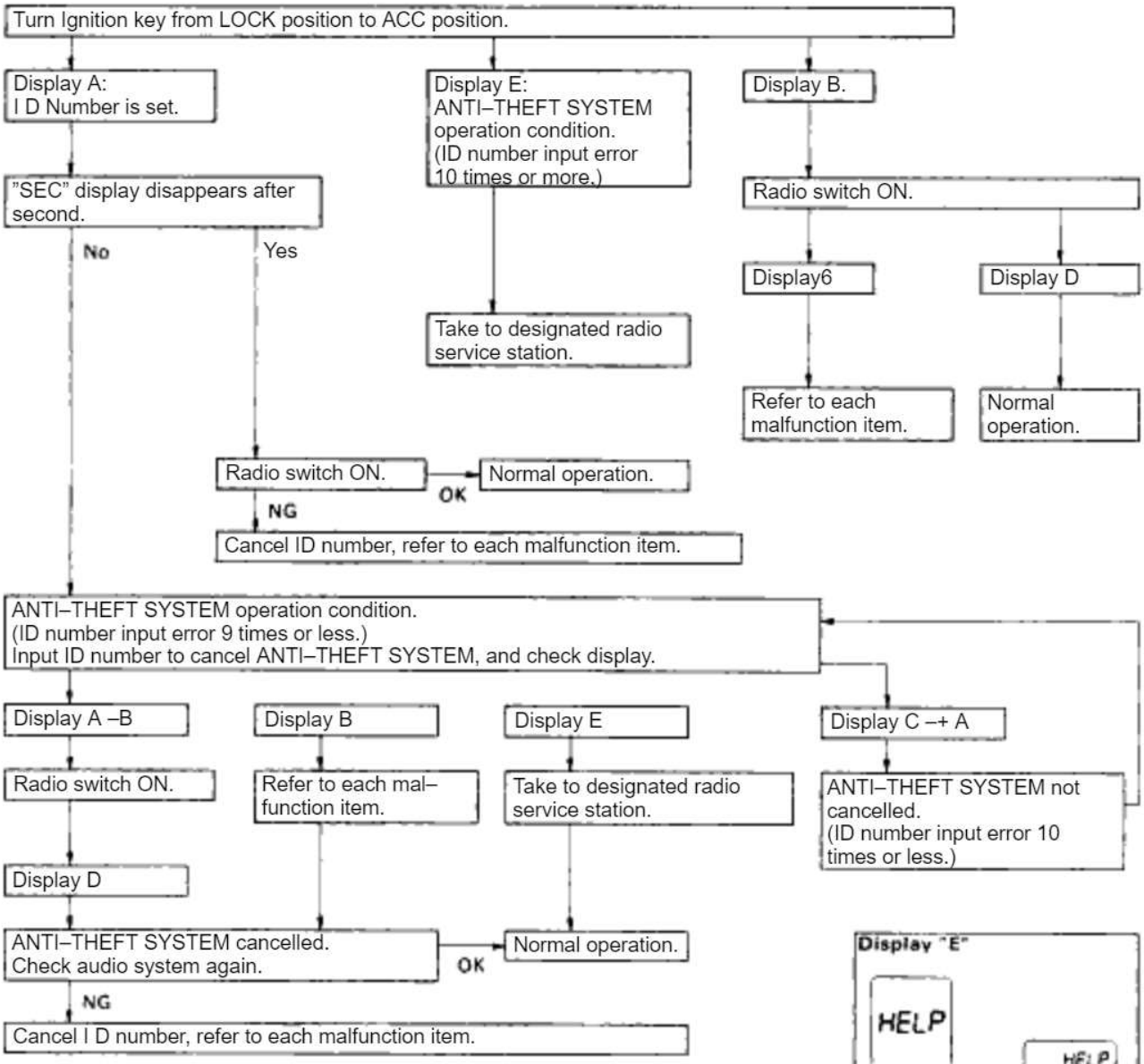


1 : Phenomenon
: Problem

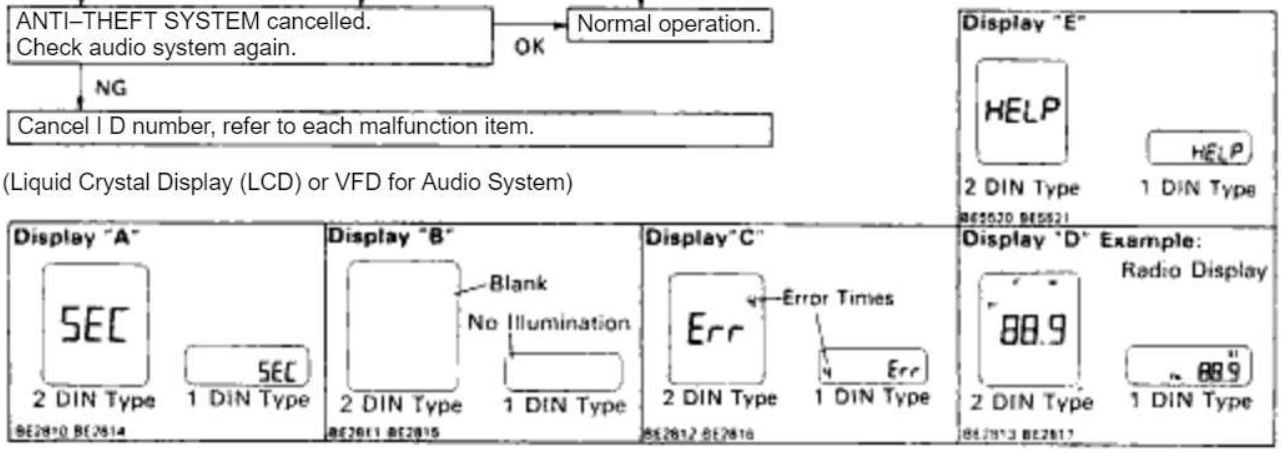
2 : Check item

3 : Trouble part or disposal

Troubleshooting for ANTI–THEFT SYSTEM



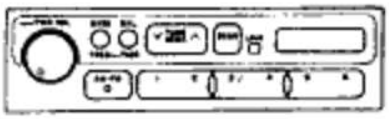
(Liquid Crystal Display (LCD) or VFD for Audio System)



HINT;

- Refer to Owner's Manual for operation details of ANTI–THEFT SYSTEM.
- When the ID number has been cancelled, reset the same number after completing the operation, or inform the customer that it has been cancelled.

1	Radio	RADIO NOT OPERATING WHEN POWER SWITCH TURNED TO 'ON'



N01720

Check if RADIO fuse is OK?
- NG → Replace fuse.
- OK ↓

Is ACC applied to radio ?
- No → ACC wire harness faulty.
- Yes ↓

Check if DOME fuse is OK?
- NG → Replace fuse.
- OK ↓

Is +B applied to radio?
- No → + B wire harness faulty.
- Yes ↓

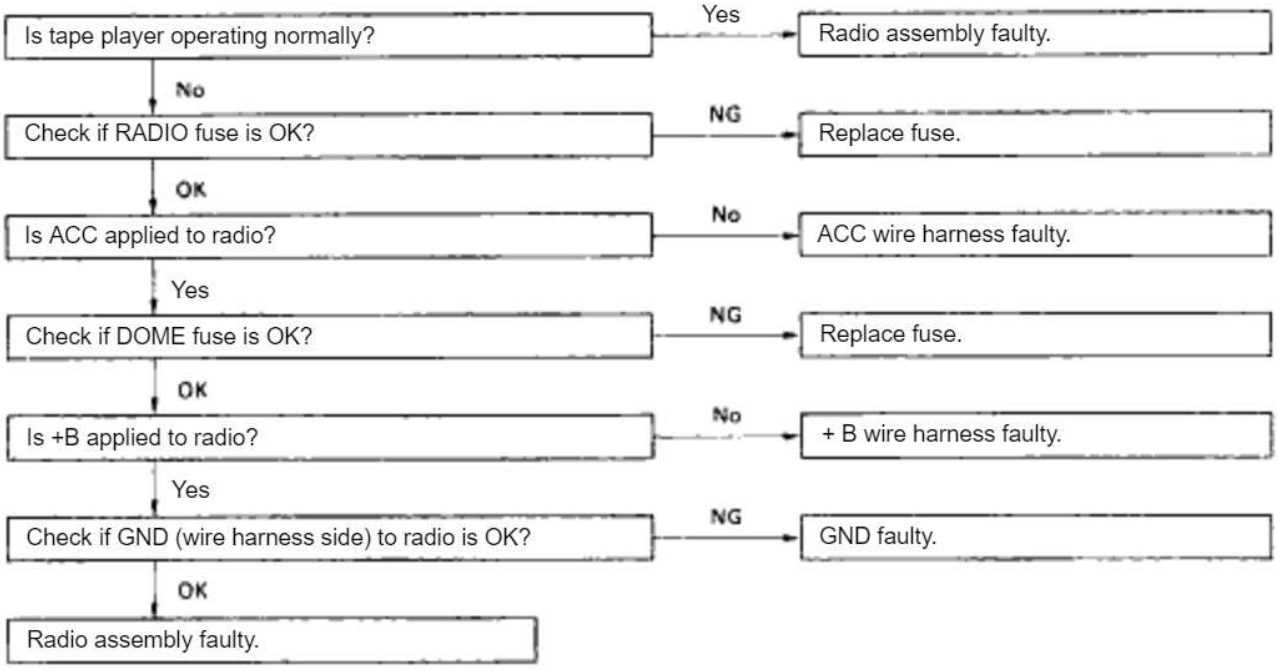
Check if GND (wire harness side) to radio is OK?
- NG → G N D .faulty.
- OK ↓

Radio assembly faulty.

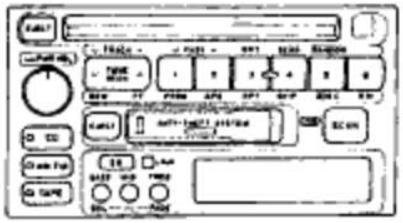
V041 75

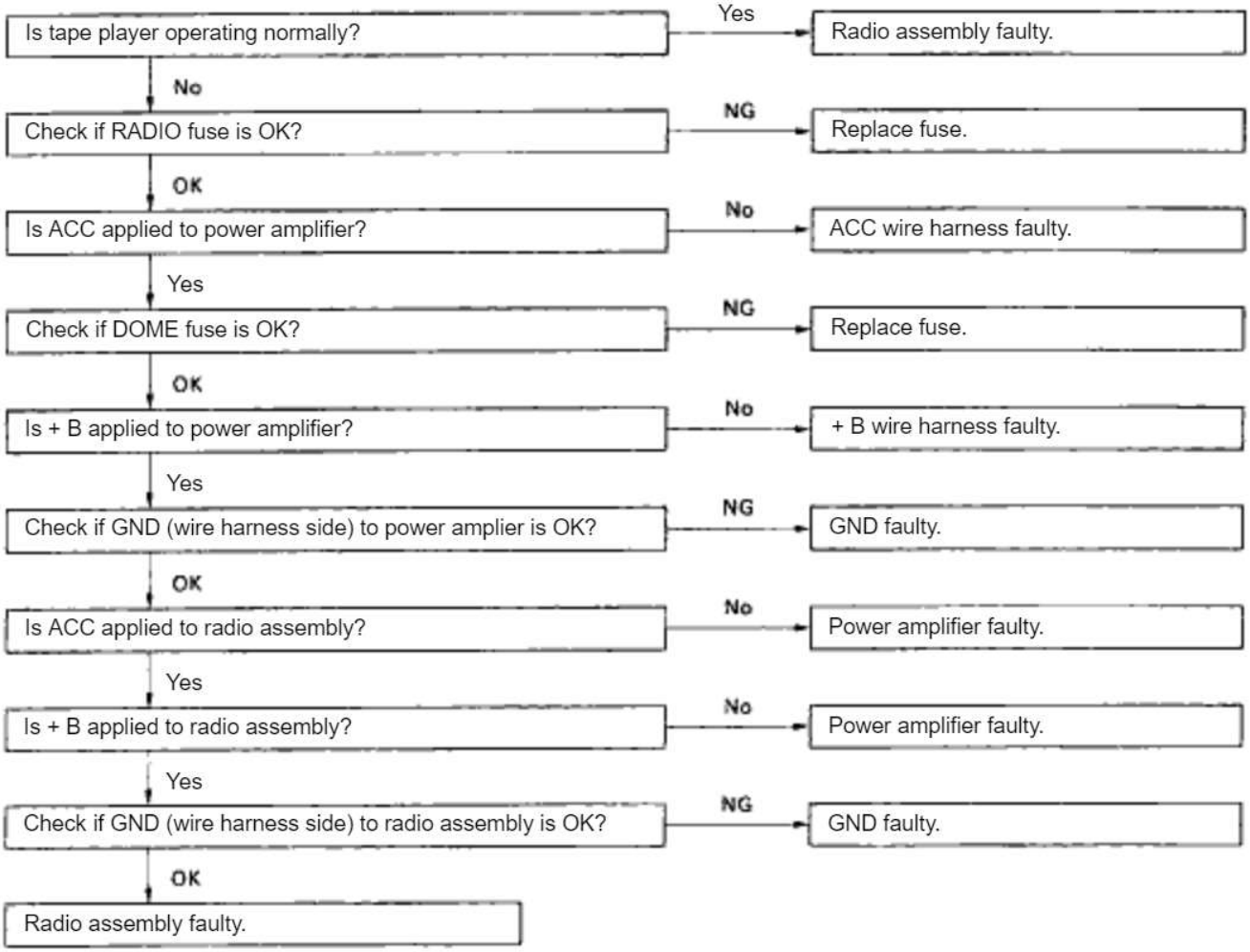


N01721


Is tape player operating normally?
Yes
Radio assembly faulty.
No
Check if RADIO fuse is OK?
NG
Replace fuse.
OK
Is ACC applied to radio?
No
ACC wire harness faulty.
Yes
Check if DOME fuse is OK?
NG
Replace fuse.
OK
Is +B applied to radio?
No
+ B wire harness faulty.
Yes
Check if GND (wire harness side) to radio is OK?
NG
GND faulty.
OK
Radio assembly faulty.

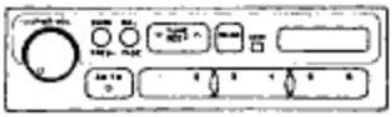

N01722


N01723

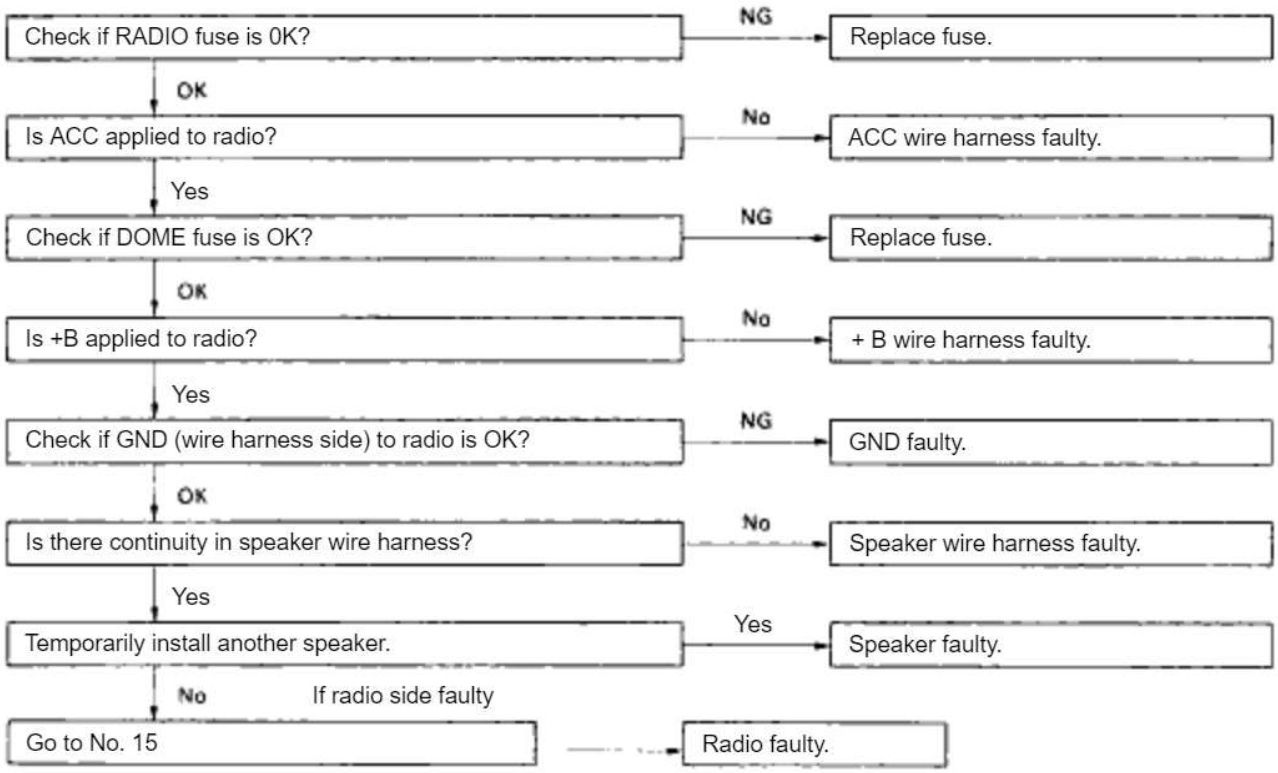


V04177

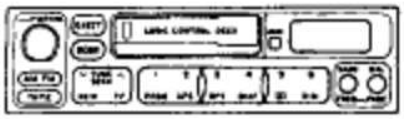
2	Radio	DISPLAY INDICATES WHEN POWER SWITCH TURNED TO 'ON', BUT NO SOUND (INCLUDING 'NOISE') IS PRODUCED



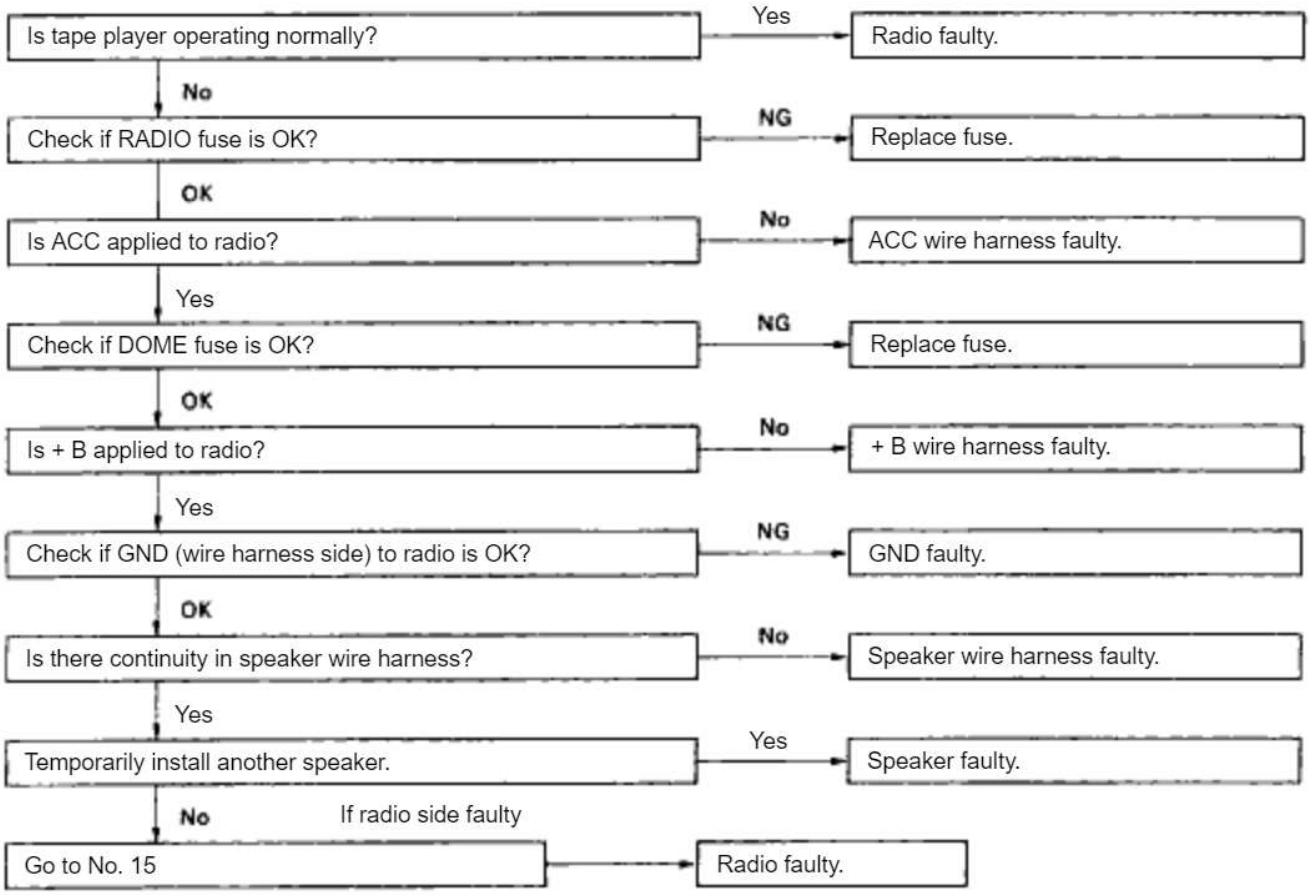
N01720



V04178

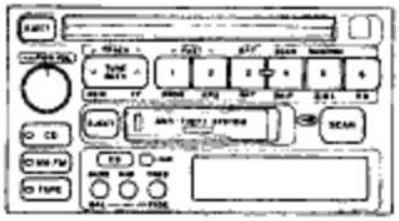


N01721

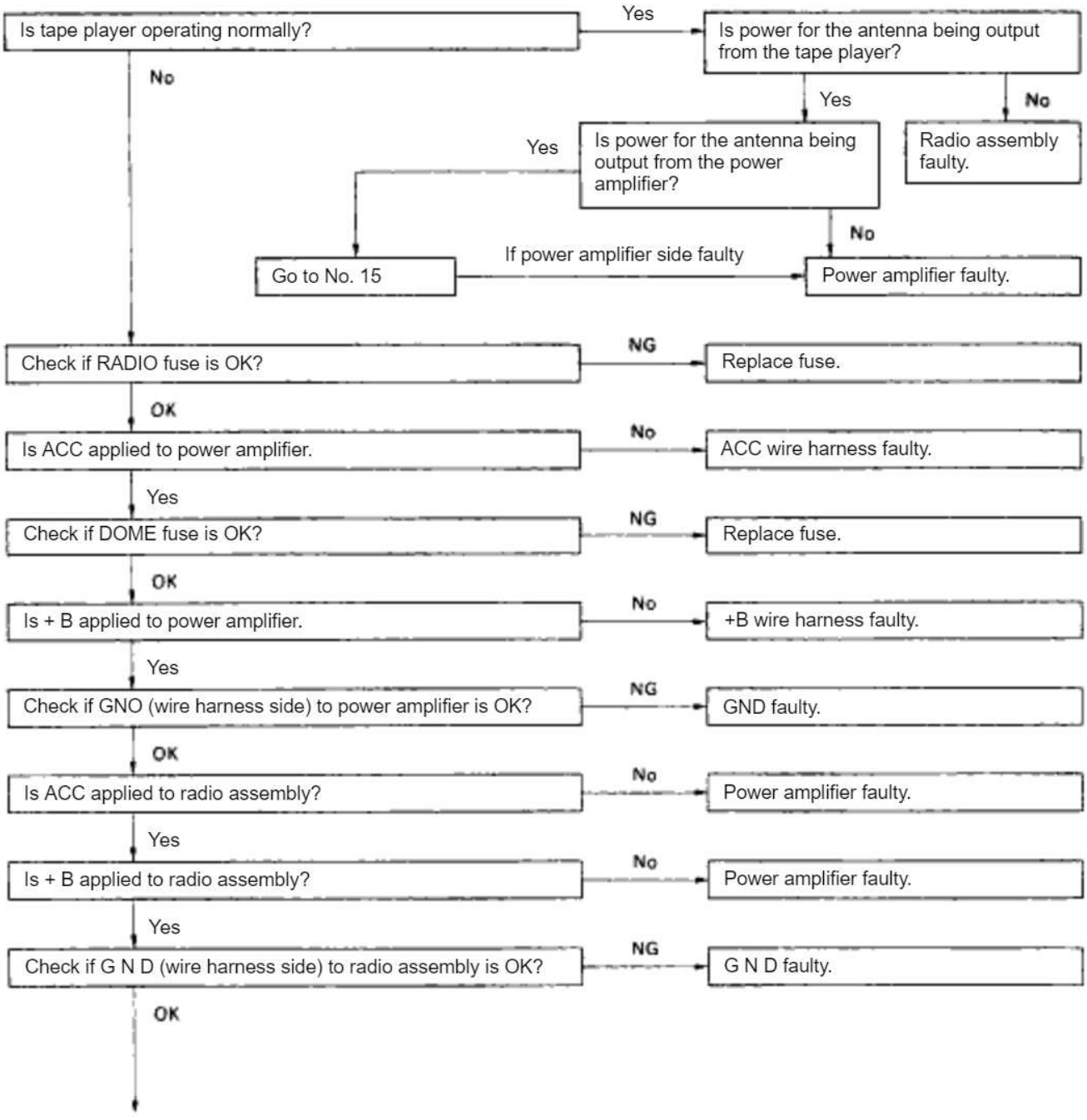

Is tape player operating normally?
Yes
Radio faulty.
No
Check if RADIO fuse is OK?
NG
Replace fuse.
OK
Is ACC applied to radio?
No
ACC wire harness faulty.
Yes
Check if DOME fuse is OK?
NG
Replace fuse.
OK
Is + B applied to radio?
No
+ B wire harness faulty.
Yes
Check if GND (wire harness side) to radio is OK?
NG
GND faulty.
OK
Is there continuity in speaker wire harness?
No
Speaker wire harness faulty.
Yes
Temporarily install another speaker.
Yes
Speaker faulty.
No
If radio side faulty
Go to No. 15
Radio faulty.



N01722



N01723



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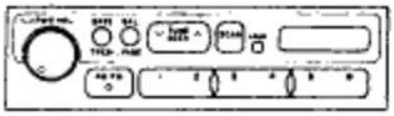
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Is there continuity in speaker wire harness?
- No → Speaker wire harness faulty.
- Yes → Temporarily install another speaker. Functions OK?
  - Yes → Speaker faulty.
  - No → Hissing sound from speaker?
    - No → Power amplifier faulty. Recheck system after repair.
    - Yes → Radio assembly faulty. Recheck system after repair.

3	Radio	NOISE PRESENT, BUT AM–FM NOT OPERATING

Go to No. 15
- if radio side faulty → Radio faulty.

4	Radio	ANY SPEAKER DOES NOT WORK



Is hiss produced by non–functioning speaker?
- Yes → Radio faulty.
- No → !s there continuity in speaker wire harness?
  - No → Speaker wire harness faulty.
  - Yes → Temporarily install another speaker. Functions OK?
    - Yes → Speaker faulty.
    - No → Radio faulty.

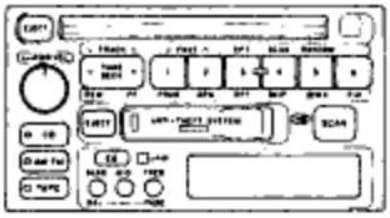


N01721

Is tape player operating normally?
Yes → Radio assembly faulty.
No
Is hiss produced by non–functioning speaker?
Yes → Radio assembly faulty.
No
Is there continuity in speaker wire harness?
No → Speaker wire harness faulty.
Yes
Temporarily install another speaker. Functions OK?
Yes → Speaker faulty.
No
Radio assembly faulty.



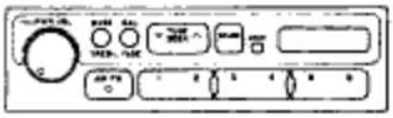
N01722



N01723

Is tape player operating normally?
Yes → Radio assembly faulty.
No
Is hiss produced by non–functioning speaker?
Yes → Radio assembly faulty. Recheck system after repair.
No
Is there continuity in speaker wire harness?
No → Speaker wire harness faulty.
Yes
Temporarily install another speaker? Functions OK?
Yes → Speaker faulty.
No
Power amplifier faulty. Recheck system after repair.

5	Radio	EITHER AM OR FM DOES NOT WORK, RECEPTION POOR (VOLUME FAINT), FEW PRESET TUNING BANDS



N01720

Problem with radio wave signals or location? — Yes → Poor signals, poor location.

No

Are both AM or FM defective? — No → Radio faulty.

Yes

Is power for the antenna being output from the radio? — No → Radio faulty.

Yes

Go to No. 15

Temporarily install another speaker. Functions OK? — Yes → Speaker faulty.

No

Radio faulty.



N01721

Problem with radio wave signals or location? — Yes → Poor signals, poor location.

No

Are both AM or FM defective? — No → Radio assembly faulty.

Yes

Is power for the antenna being output from the radio assembly? — No → Radio assembly faulty.

Yes

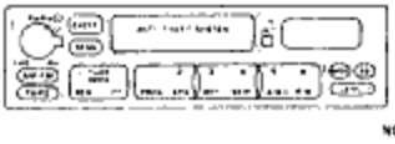
Go to No. 15

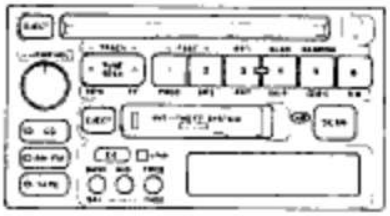
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V04183

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Is tape player operating normally?
Yes → Radio assembly faulty.
No
Temporarily install another speaker. Functions OK?
Yes → Speaker faulty.
No
Radio assembly faulty.

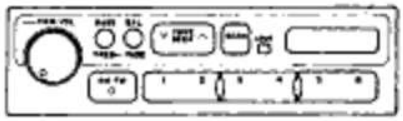

N01722


N01723

Problem with radio wave signals or location?
Yes → Poor signals, poor location.
No
Are both AM and FM defective?
No → Radio assembly faulty.
Yes
Is power for the antenna being output from the radio assembly?
No → Radio assembly faulty.
Yes
Go to No. 15
Is tape player operating normally?
Yes → Radio assembly faulty.
No
Temporarily install another speaker. Functions OK?
Yes → Speaker faulty.
No
Hissing sound from speaker?
No → Power amplifier faulty. Recheck system after repair.
Radio assembly faulty. Recheck system after repair.

V04184

6 Radio — SOUND QUALITY POOR



N01720

Is sound quality always bed? — No → Is sound quality bad in certain area only? — Yes → Poor signals, poor location.

Is sound quality bad in certain area only? — No → Radio faulty.

Is sound quality always bed? — Yes → is speaker properly installed? — No → Install properly.

is speaker properly installed? — Yes → Temporarily install another speaker. Functions OK? — Yes → Speaker faulty.

Temporarily install another speaker. Functions OK? — No → Is power for the antenna being output from the radio? — No → Radio faulty.

Is power for the antenna being output from the radio? — Yes → Go to No. 15 — If radio side faulty → Radio faulty.



N01721

Is sound quality always bad? — No → Is sound quality bad in certain area only? — Yes → Poor signals, poor location.

Is sound quality bad in certain area only? — No → Radio assembly faulty.

Is sound quality always bad? — Yes → Is tape player operating normally? — Yes → Is power for the antenna being output from the radio assembly? — No → Radio assembly faulty.

Is power for the antenna being output from the radio assembly? — Yes → Go to No. 15 — If radio side faulty → Radio assembly faulty.

Is tape player operating normally? — No → Is speaker properly installed? — No → Install property.

Is speaker properly installed? — Yes

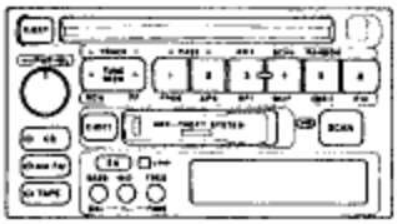
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V04185

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Temporarily install another speaker. Functions OK?
Yes → Speaker faulty.
No → Radio assembly faulty.

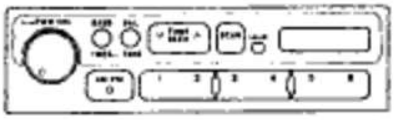

N01722


N01723

Is sound quality always bad?
No → Is sound quality bad in certain areas only?
Yes → Poor signals, poor location.
No → Is tape player operating normally?
Yes → Radio assembly faulty.
No → Radio assembly or power amplifier faulty.

Yes → Is tape player operating normally?
Yes → Is power for the antenna being output from the radio assembly?
Yes → Is power for the antenna being output from the power amplifier?
No → Power amplifier faulty.
No → Radio assembly faulty.
No → Is speaker properly installed?
No → Install properly.
Yes → Temporarily install another speaker. Functions OK?
Yes → Speaker faulty.
No → Radio assembly or power amplifier faulty. Recheck system after repair.

7 Radio PRESET MEMORY DISAPPEARS



N01720

Check if DOME fuse is OK?
- NG → Replace fuse.
- OK ↓

Is + B applied to radio?
- No → + B wire harness faulty.
- Yes ↓

Check if GND (wire harness side) to radio?
- NG → GND faulty.
- OK ↓

Radio faulty.



N01721

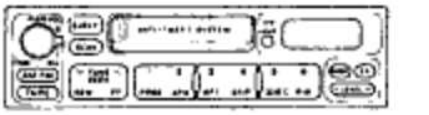
Can cassette tape be inserted in tape player?
- Yes → Radio assembly faulty.
- No ↓

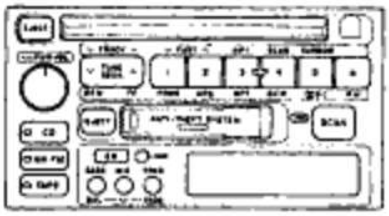
Check if DOME fuse is OK?
- NG → Replace fuse.
- OK ↓

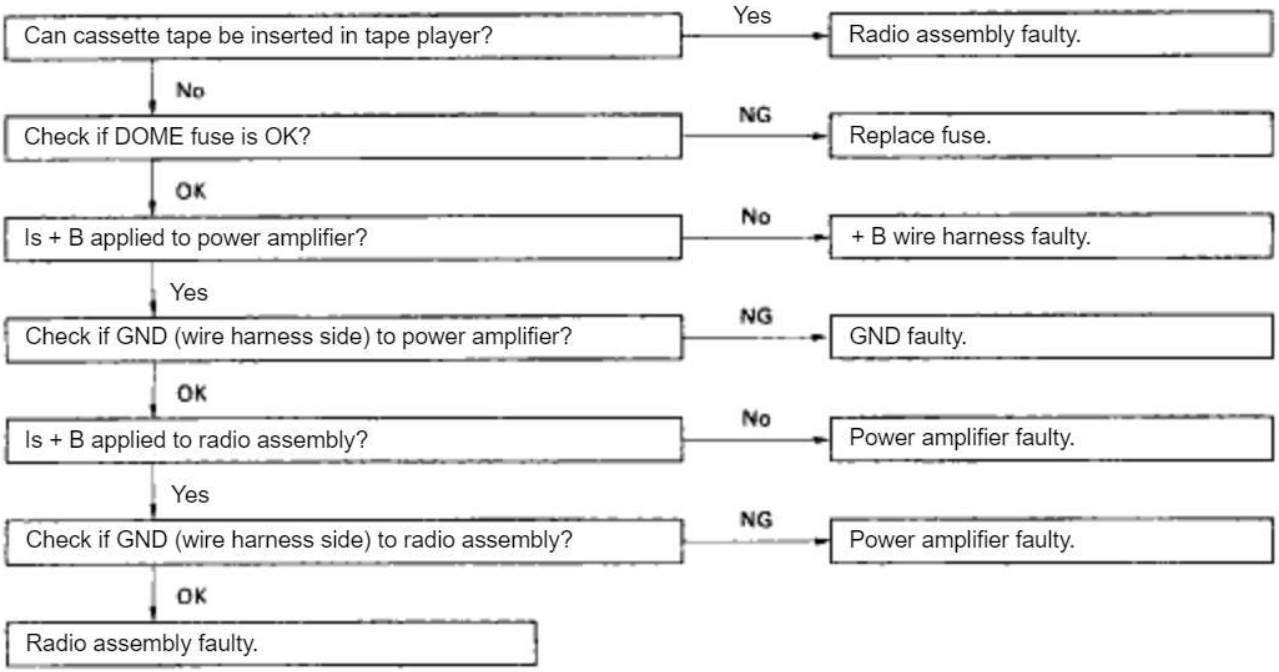
Is + B applied to radio assembly?
- No → +B wire harness faulty.
- Yes ↓

Check if GND (wire harness side) to radio?
- NG → GND faulty.
- OK ↓

Radio assembly faulty.


N01722


N01723



V04188

8	Tape Player	CASSETTE TAPE CANNOT BE INSERTED



N01721

Is there a foreign object inside tape player? — Yes → Remove foreign object.

No

Is auto search button of radio operating normally? — Yes → Radio assembly faulty.

No

Check if DOME fuse is OK? — NG → Replace fuse.

OK

Is +B applied to radio assembly? — No → +B wire harness faulty.

Yes

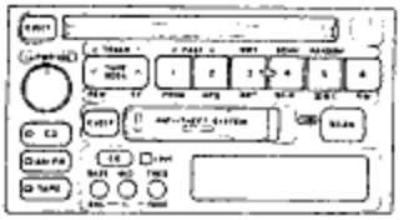
Check if GND (wire harness side) to radio assembly? — NG → GND faulty.

OK

Radio assembly faulty.



N01722



N01723

Is there a foreign object inside tape player? — Yes → Remove foreign object.

No

Is auto search button radio operating normally? — Yes → Radio assembly faulty.

No

Check if DOME fuse is OK? — NG → Replace fuse.

OK

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Is + B applied to power amplifier? —No→ + B wire harness faulty.

Yes

Check if GND (wire harness side) to power amplifier is OK? —NG→ GND faulty.

OK

Is + B applied to radio assembly —No→ Power amplifier faulty.

Yes

Check if GND (wire harness side) to radio assembly is OK? —NG→ Power amplifier faulty.

OK

Radio assembly faulty.

	Tape Player	CASSETTE TAPE INSERTS, BUT NO POWER



N01721

Is radio operating normally? —Yes→ Radio assembly faulty.

No

Check if RADIO fuse is OK? —NG→ Replace fuse.

OK

Is ACC applied to radio assembly? —No→ ACC wire harness faulty.

Yes

Check if DOME fuse is OK? —NG / No→ Replace fuse.

OK

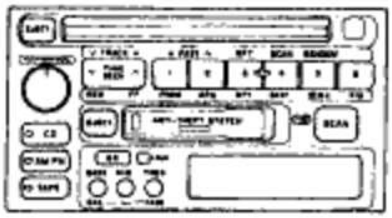
Is + B applied to radio assembly? → + B wire harness faulty.

Yes

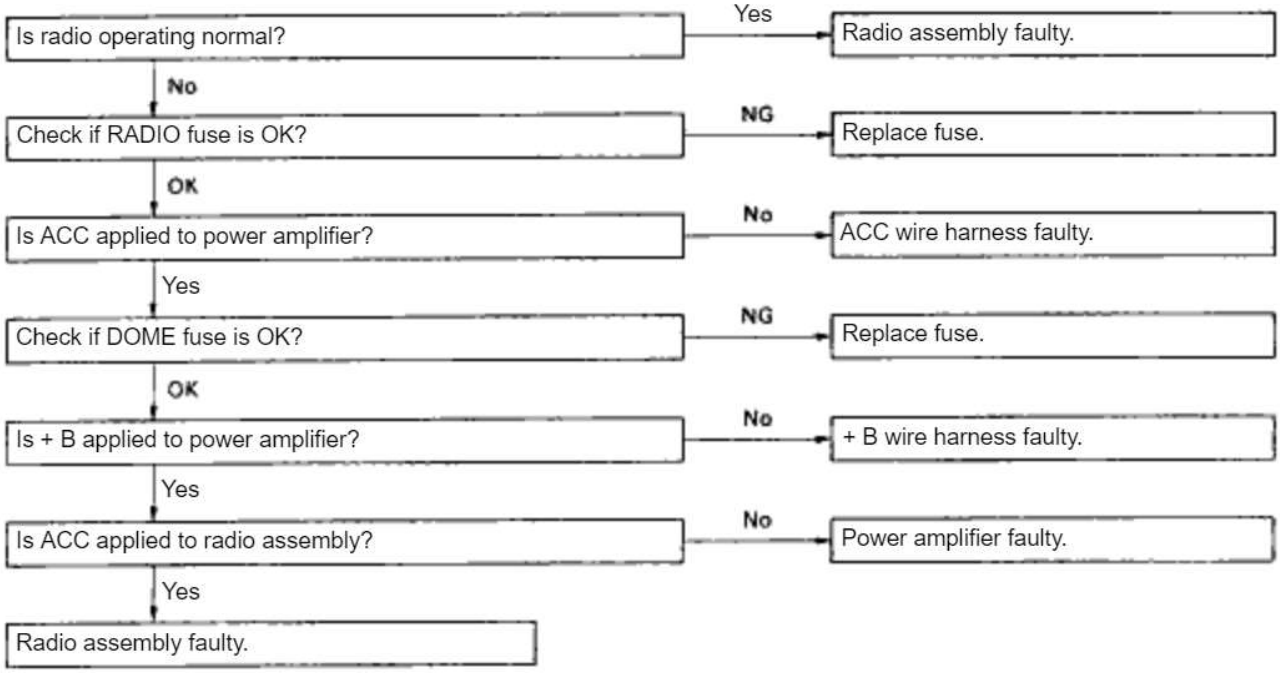
Radio assembly faulty.



N01722



N01723



10	Tape Player	POWER COMING IN, BUT TAPE PLAYER NOT OPERATING



N01721

Functions OK if different cassette tape inserted? — Yes → Cassette tape faulty.

No

Is radio operating normally? — Yes → Radio assembly faulty.

No

Is there continuity in speaker wire harness? — No → Speaker wire harness faulty.

Yes

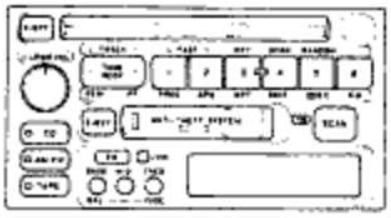
Temporarily install another speaker. Functions OK? — Yes → Speaker faulty.

No

Radio assembly faulty.



N01722



N01723

Function 4K if different cassette tape inserted? — Yes → Cassette tape faulty.

No

Is radio operating normally? — Yes → Radio assembly faulty.

No

Is there continuity in speaker wire harness? — No → Speaker wire harness faulty.

Yes

CONTINUED ON NEXT PAGE

CONTINUED FROM PREVIOUS PAGE

Temporarily install another speaker.
Function OK?
→ Yes → Speaker faulty.

No

Hissing sound from speaker?
→ No → Power amplifier faulty.
Recheck system after repair.

Yes

Radio assembly faulty.
Recheck system after repair.

11	Tape Player	EITHER SPEAKER DOES NOT WORK



M01721

Is radio operating normally?
→ Yes → Radio assembly faulty.

No

Is hiss produces by non–functioning speaker.
→ Yes → Radio assembly faulty.

No

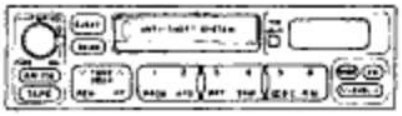
Is there continuity in speaker wire harness?
→ No → Speaker wire harness faulty.

No

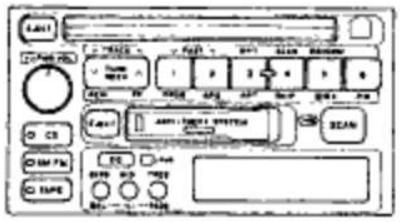
Temporarily install another speaker.
Functions OK?
→ Yes → Speaker faulty.

No

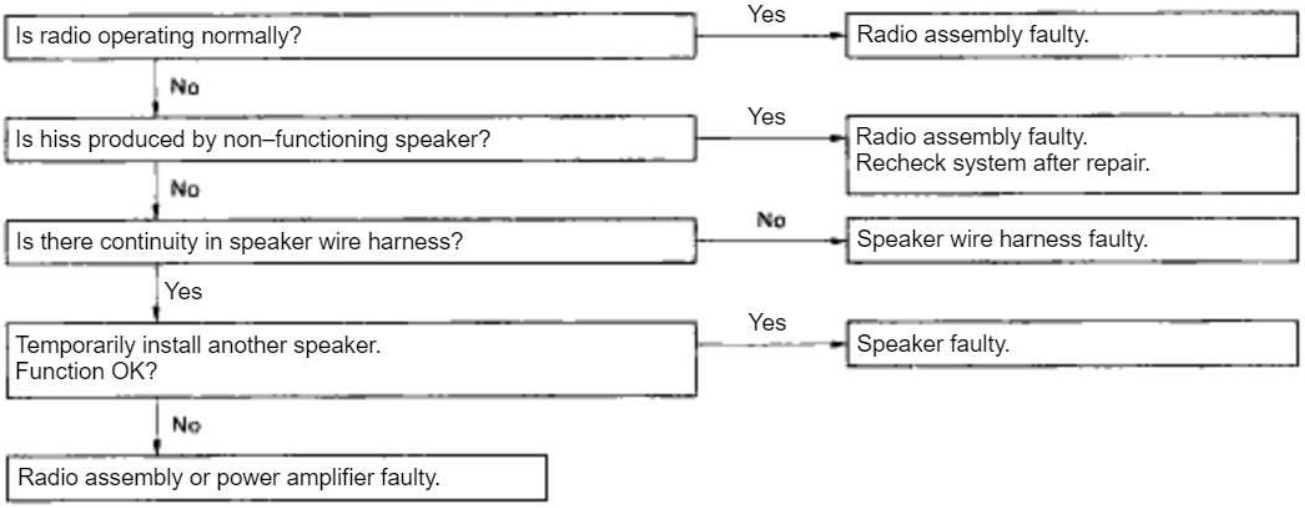
Radio assembly faulty.



N01722



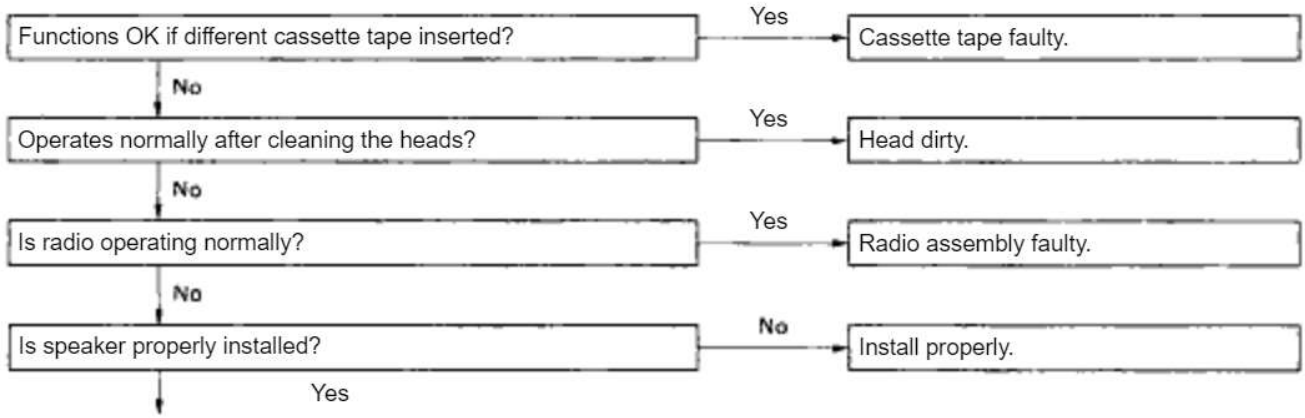
N01723



12 Tape Player SOUND QUALITY POOR (VOLUME FAINT)



N01721



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V04194

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Temporarily install another speaker.
Function OK?

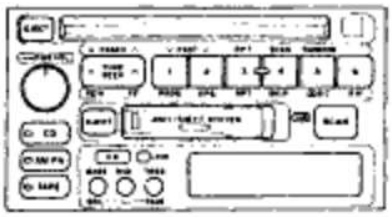
Yes → Speaker faulty.

No

Radio assembly faulty.



N01722



N01723

Functions OK different cassette tape inserted?

Yes → Cassette tape faulty.

No

Operates normally after cleaning the heads?

Yes → Head dirty.

No

Is radio operating normally?

Yes → Radio assembly faulty.

No

Is speaker properly installed?

No → Install properly.

Yes

Temporarily install another speaker.
Functions OK?

Yes → Speaker faulty.

No

Radio assembly faulty,

V08195

13	Tape Player	TAPE JAMMED MALFUNCTION WITH TAPE SPEED OR AUTO–REVERSE

Function OK if different tape (less than 120 mins.) is inserted? — Yes → Cassette tape faulty.

No

Is there a foreign abject inside tape player? — Yes → Remove foreign object.

No

Operates normally after cleaning the heads? — Yes → Head dirty.

No

Radio assembly faulty.

14	Tape Player	CASETTE TAPE WILL NOT EJECT



M01721

Is tape player operating normally? — No → Cassette tape jammed.

Yes

Is auto search button of radio operating normally? — Yes → Radio assembly faulty.

No

Check if DOME fuse is OK? — NG → Replace fuse.

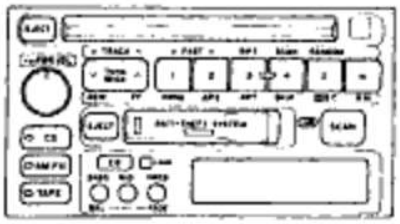
OK

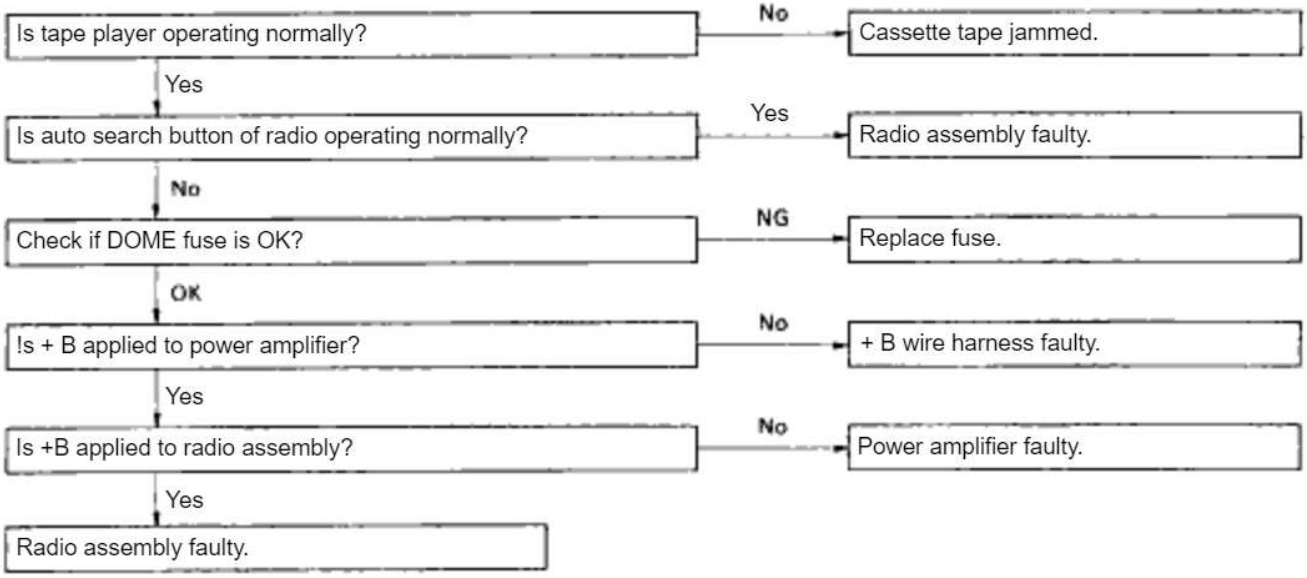
Is + B applied to radio assembly? — No → + B wire harness faulty.

Yes

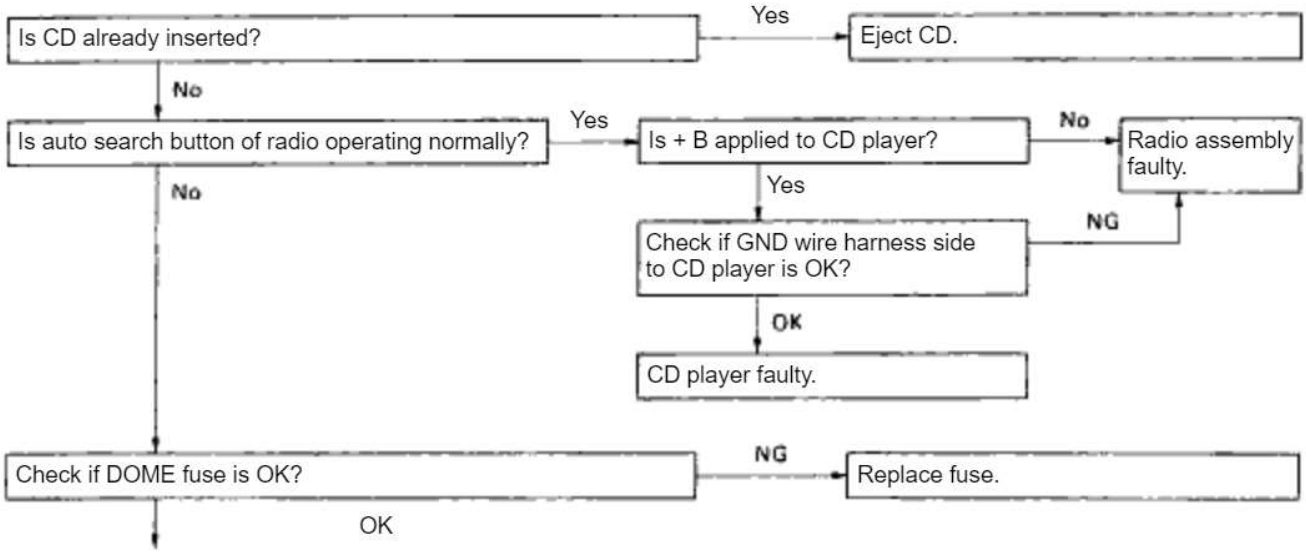
Radio assembly faulty?


N01722


N01723

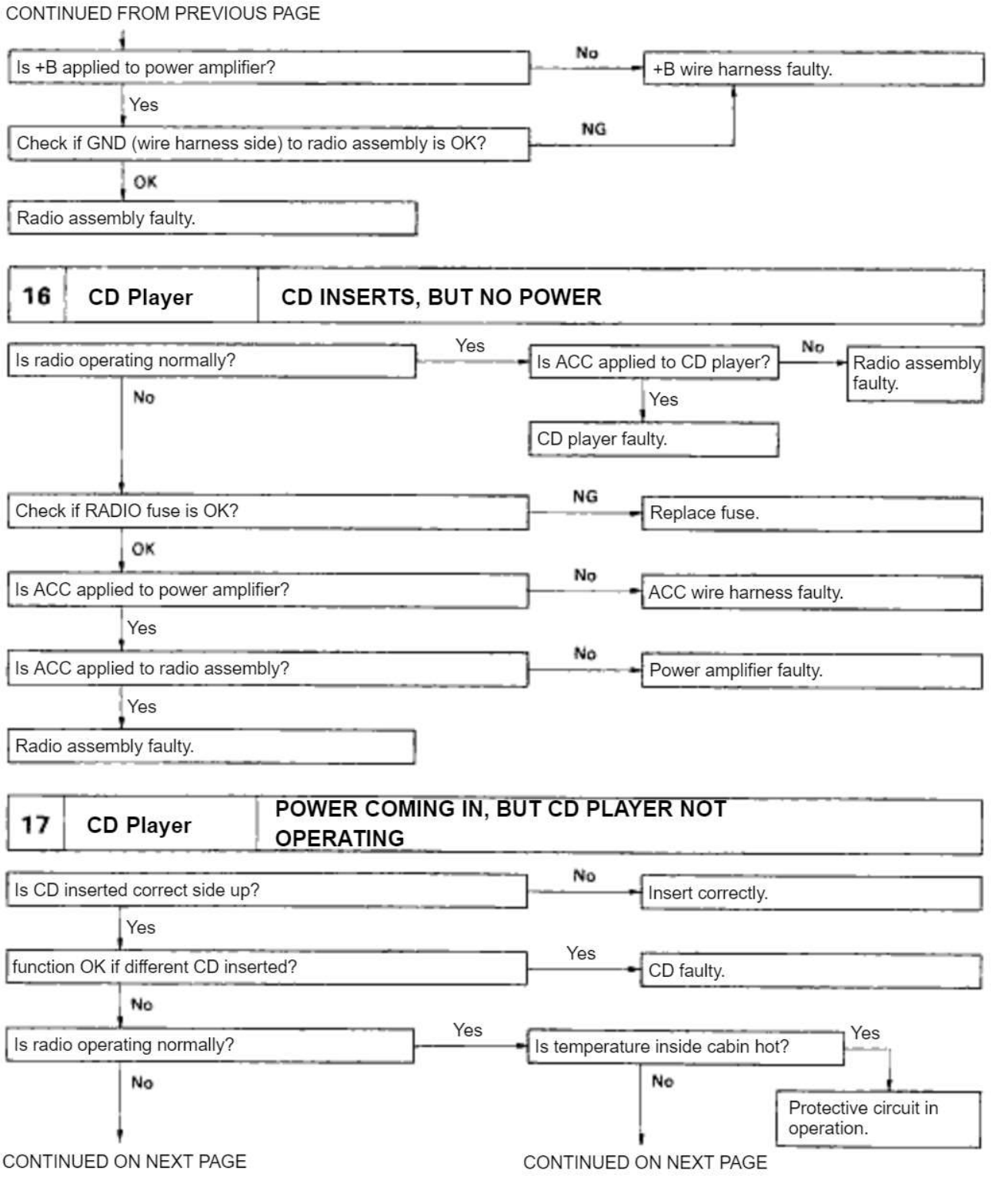


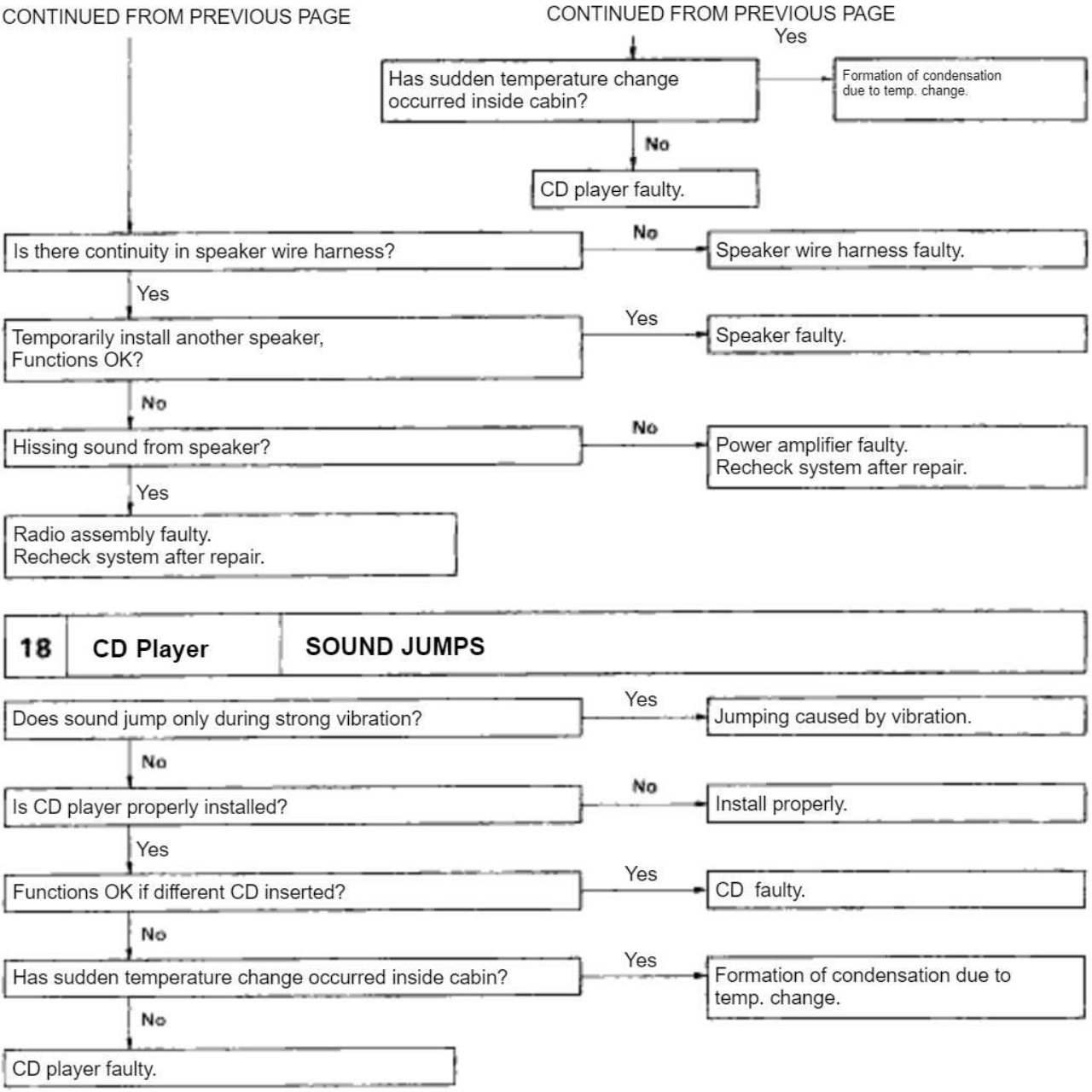
15	CD Player	CD CANNOT BE INSERTED

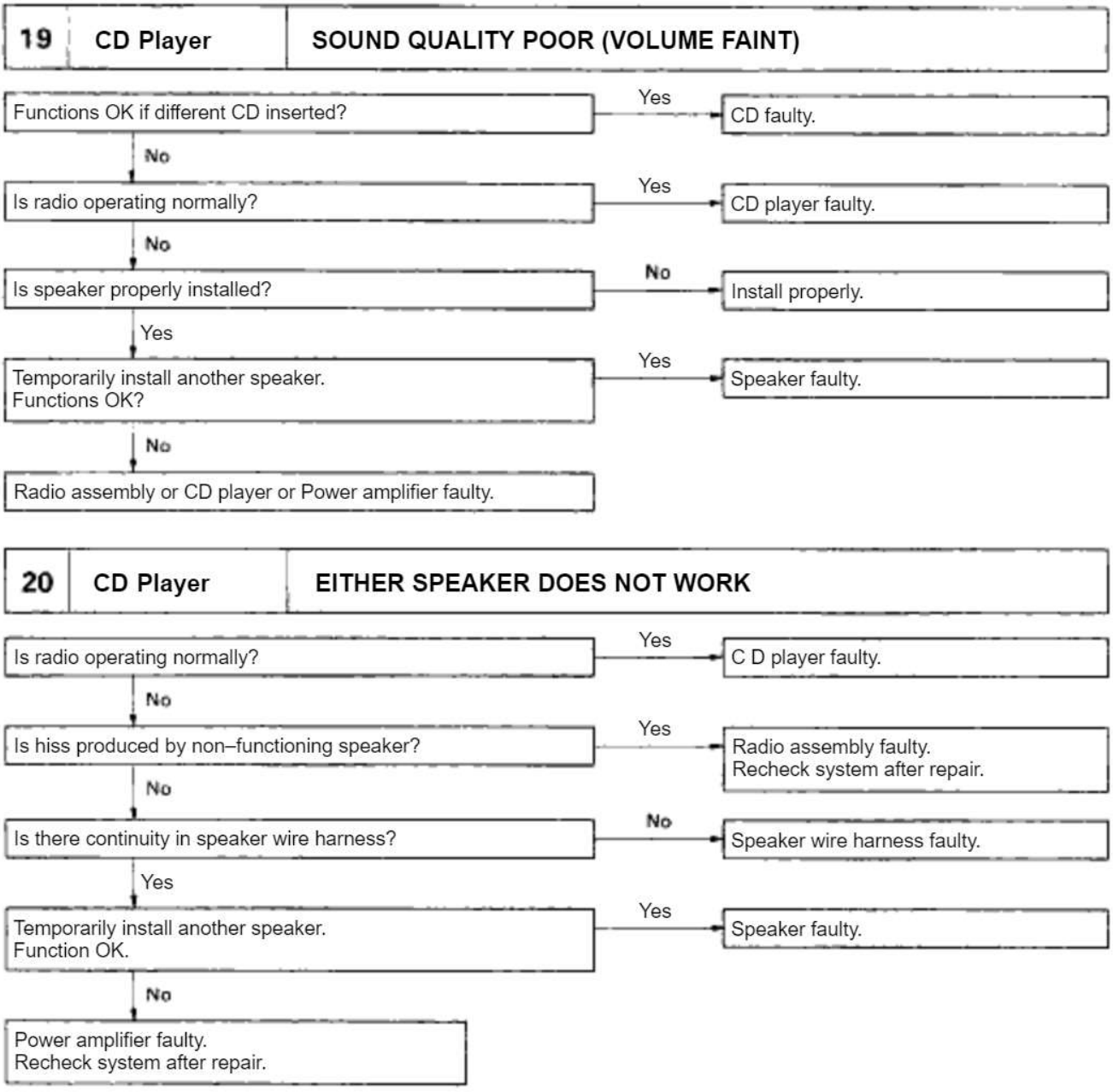


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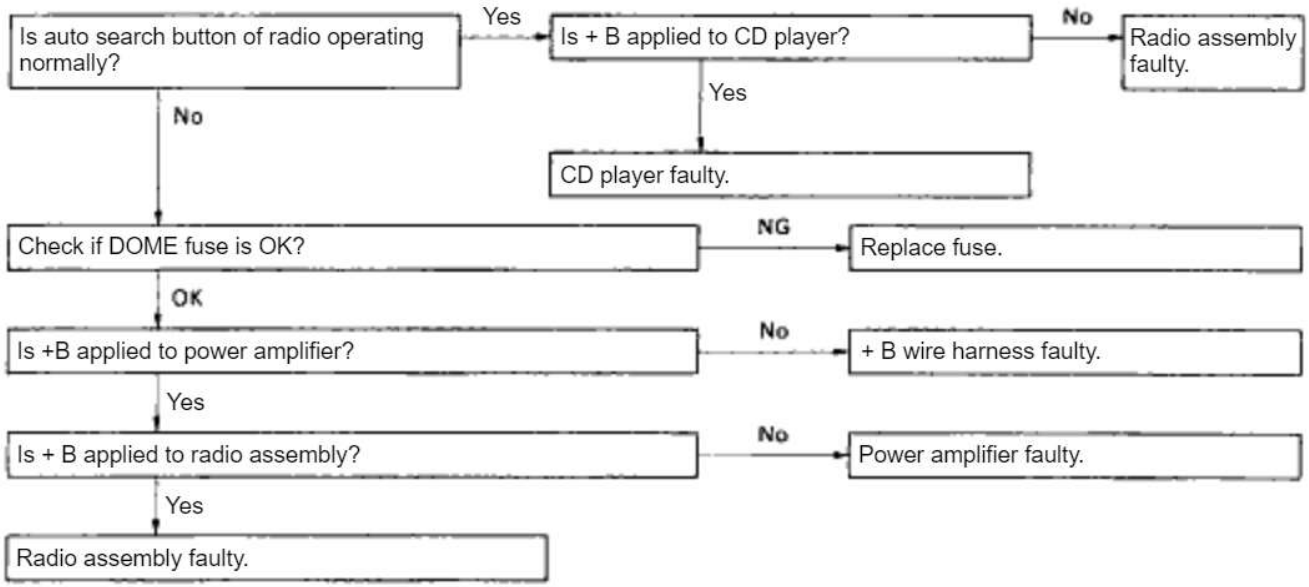
V04197


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Is +B applied to power amplifier?
No
+B wire harness faulty.
Yes
Check if GND (wire harness side) to radio assembly is OK?
NG
OK
Radio assembly faulty.
16
CD Player
CD INSERTS, BUT NO POWER
Is radio operating normally?
Yes
Is ACC applied to CD player?
No
Radio assembly faulty.
Yes
CD player faulty.
No
Check if RADIO fuse is OK?
NG
Replace fuse.
OK
Is ACC applied to power amplifier?
No
ACC wire harness faulty.
Yes
Is ACC applied to radio assembly?
No
Power amplifier faulty.
Yes
Radio assembly faulty.
17
CD Player
POWER COMING IN, BUT CD PLAYER NOT OPERATING
Is CD inserted correct side up?
No
Insert correctly.
Yes
function OK if different CD inserted?
Yes
CD faulty.
No
Is radio operating normally?
Yes
Is temperature inside cabin hot?
Yes
No
Protective circuit in operation.
No
CONTINUED ON NEXT PAGE
CONTINUED ON NEXT PAGE


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CONTINUED FROM PREVIOUS PAGE
Yes
Has sudden temperature change occurred inside cabin?
Formation of condensation due to temp. change.
No
CD player faulty.
Is there continuity in speaker wire harness?
No
Speaker wire harness faulty.
Yes
Temporarily install another speaker, Functions OK?
Yes
Speaker faulty.
No
Hissing sound from speaker?
No
Power amplifier faulty. Recheck system after repair.
Yes
Radio assembly faulty. Recheck system after repair.
18
CD Player
SOUND JUMPS
Does sound jump only during strong vibration?
Yes
Jumping caused by vibration.
No
Is CD player properly installed?
No
Install properly.
Yes
Functions OK if different CD inserted?
Yes
CD faulty.
No
Has sudden temperature change occurred inside cabin?
Yes
Formation of condensation due to temp. change.
No
CD player faulty.

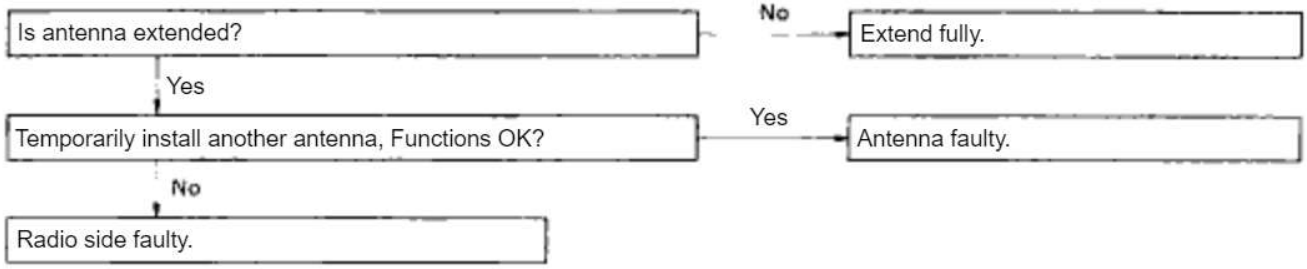

19
CD Player
SOUND QUALITY POOR (VOLUME FAINT)
Functions OK if different CD inserted?
Yes
CD faulty.
No
Is radio operating normally?
Yes
CD player faulty.
No
Is speaker properly installed?
No
Install properly.
Yes
Temporarily install another speaker.
Functions OK?
Yes
Speaker faulty.
No
Radio assembly or CD player or Power amplifier faulty.
20
CD Player
EITHER SPEAKER DOES NOT WORK
Is radio operating normally?
Yes
C D player faulty.
No
Is hiss produced by non–functioning speaker?
Yes
Radio assembly faulty.
Recheck system after repair.
No
Is there continuity in speaker wire harness?
No
Speaker wire harness faulty.
Yes
Temporarily install another speaker.
Function OK.
Yes
Speaker faulty.
No
Power amplifier faulty.
Recheck system after repair.

21 CD Player — CD WILL NOT EJECT

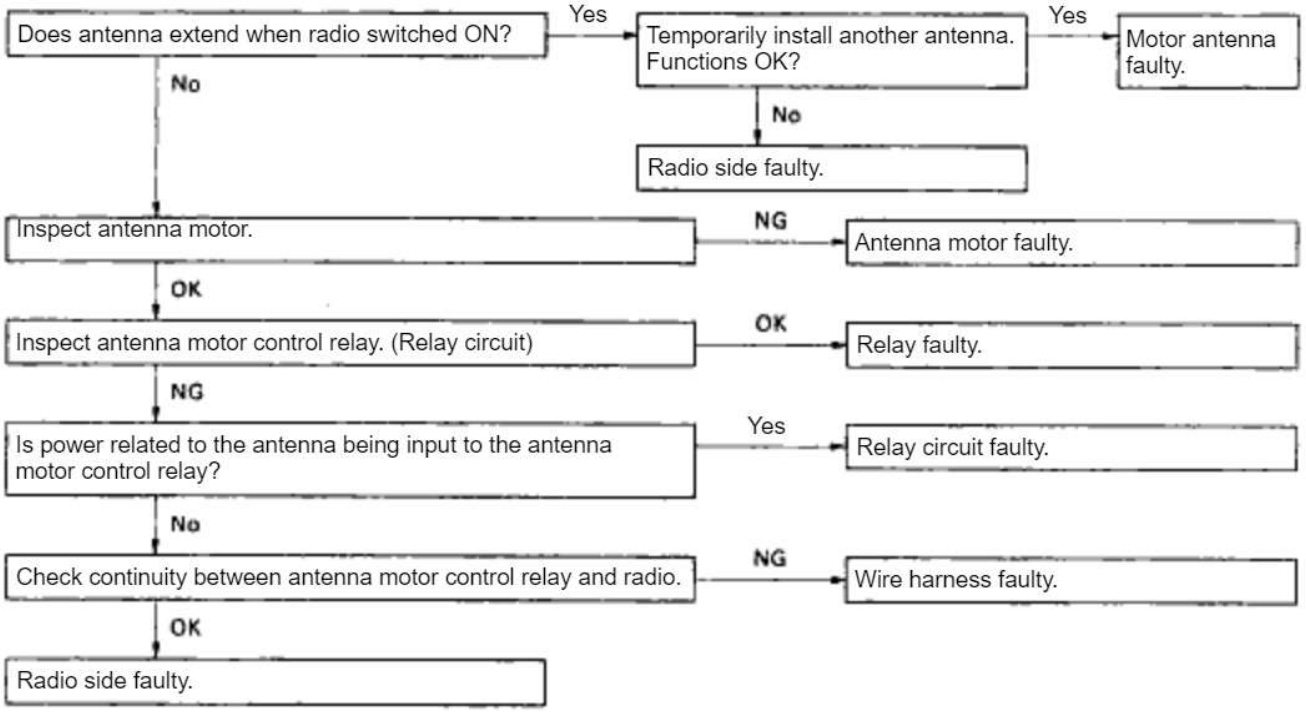


22 Antenna — ANTENNA – RELATED

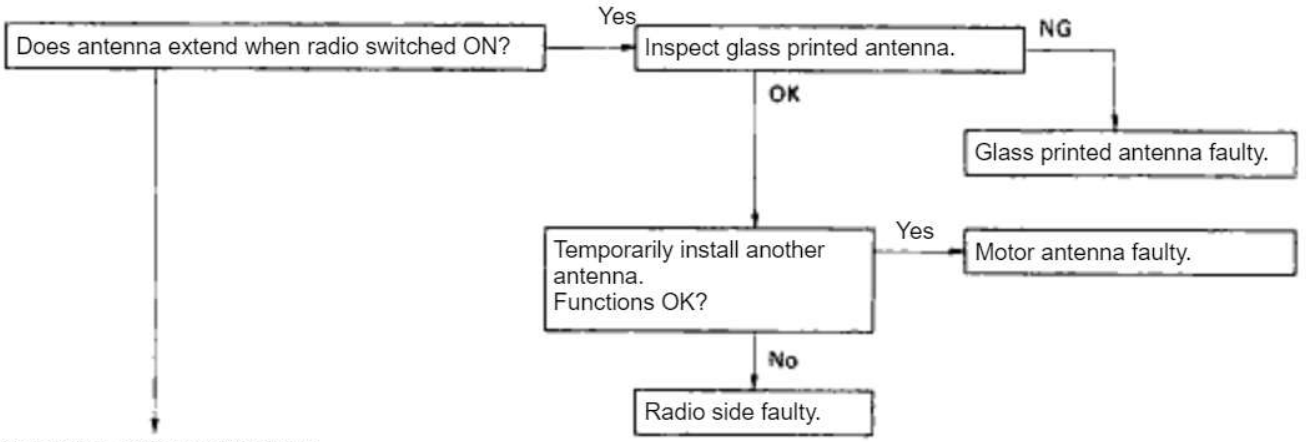
Antenna w/o Motor Type



Motor Antenna Type

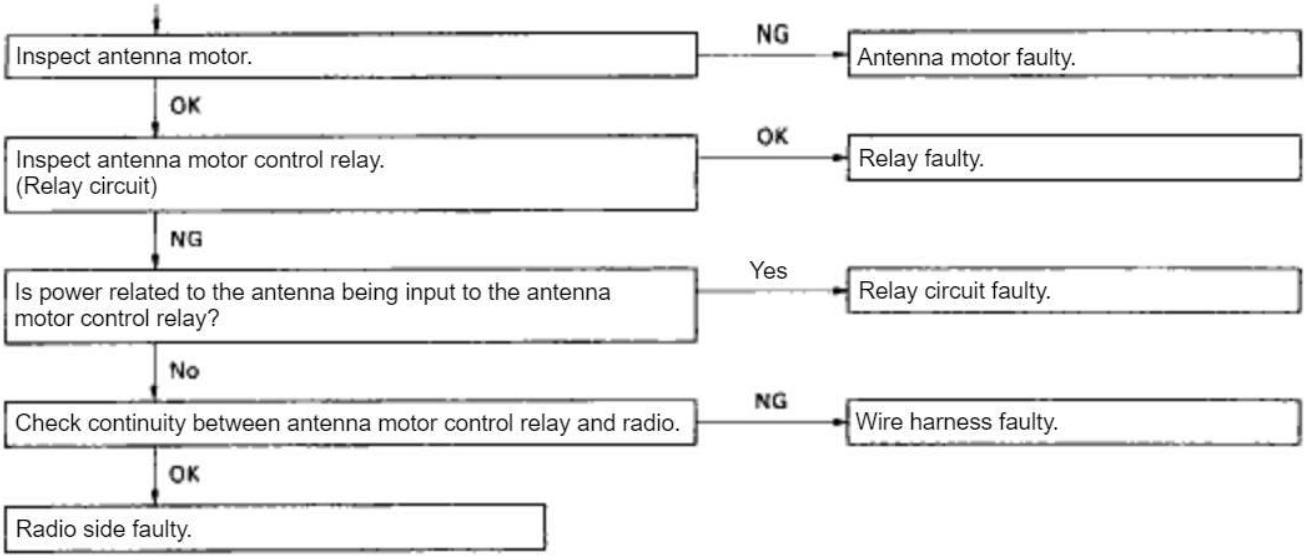


Motor Antenna and Glass Printed Antenna Type

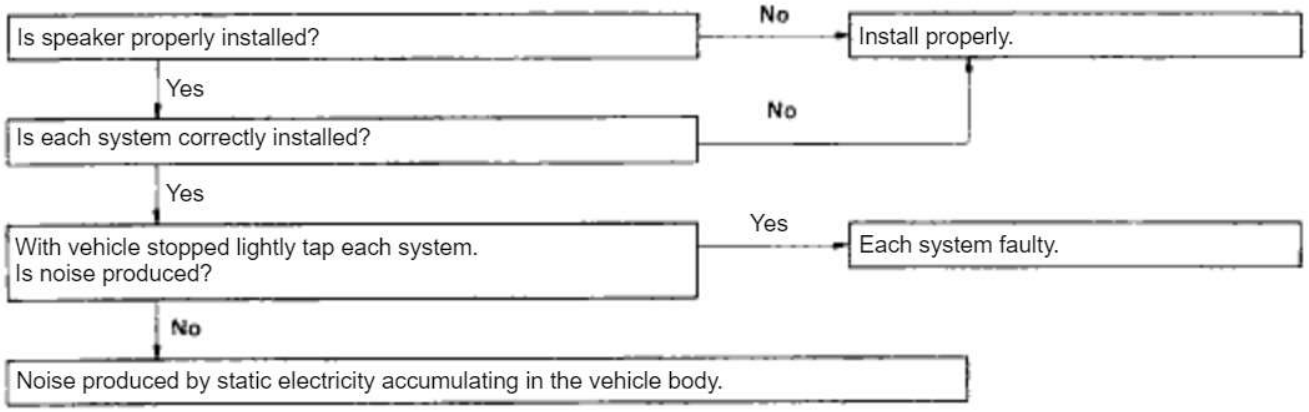


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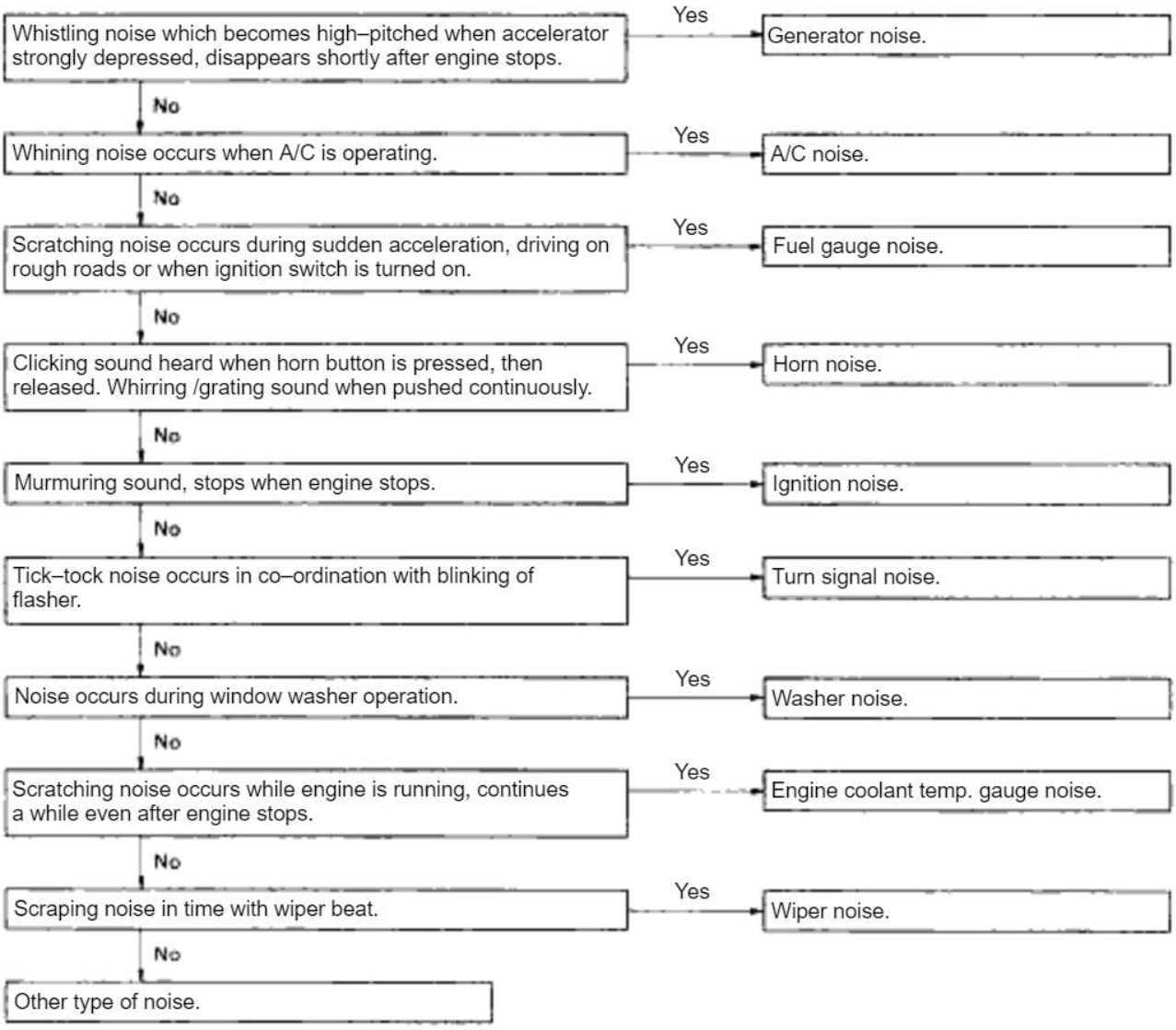
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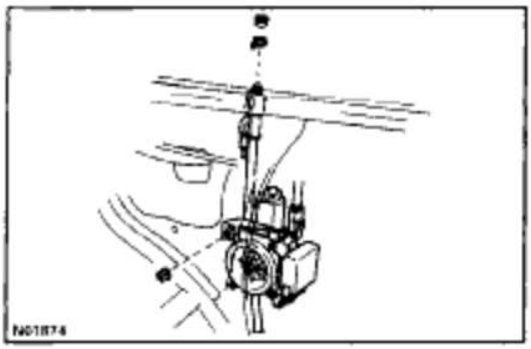


23	Noise	NOISE PRODUCED BY VIBRATION OR SHOCK WHILE DRIVING



24	Noise	NOISE PRODUCED WHEN ENGINE STARTS





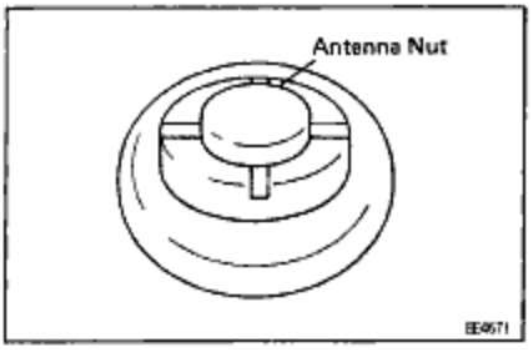
MOTOR ANTENNA REMOVAL AND INSTALLATION

1. REMOVE MOTOR ANTENNA

(a) Remove the antenna nut.
(b) Remove the RH side cover.
(c) Disconnect the motor antenna connector.
(d) Remove the nut and the motor antenna assembly.
(e) Disconnect the antenna cord.
(f) Remove the drain hose.

2. INSTALL MOTOR ANTENNA

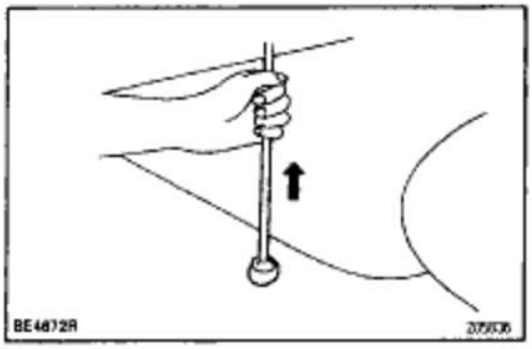
(a) Connect the motor antenna connector and the anten–na cord.
(b) Install the antenna nut.
(c) Install the nut.
(d) Connect the drain hose.



ANTENNA ROD REMOVAL AND INSTALLATION

1. REMOVE ANTENNA ROD

HINT: Perform this operation with the battery nega–tive (–) cable connected to the battery terminal.
(a) Turn the ignition switch to ”LOCK” position.
(b) Remove the antenna nut.

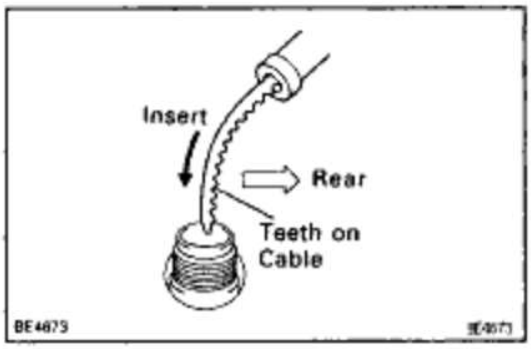


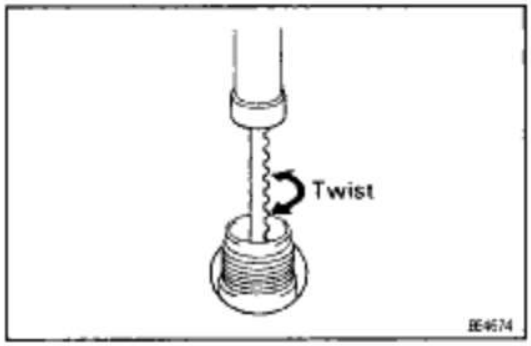
(c) Press the ’AM’ or ”FM” button on the radio receiver, and simultaneously turn the ignition switch to ”ACC” position.

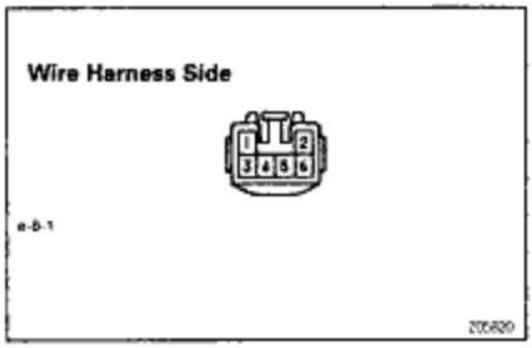
HINT:

- The rod will extend fully and be released from the motor antenna.
- After removing the antenna rod, leave the igni–tion switch at ”ACC”.

NOTICE: To prevent body damage when the antenna rod is released, hold the rod while it comes out.







2. INSTALL ANTENNA ROD

(a) Insert the cable of the rod until it reaches the bottom.

HINT:

- When inserting the cable, the teeth on the cable must face toward the rear of the vehicle.
- Insert the cable approx. 400 mm (15.7 in.).

(b) Wind the cable to retract the rod by turning the ignition switch to "LOCK" position.

HINT:

- If the ignition switch is already in "LOCK" position, perform step 1 (c) first, then turn the ignition switch to "ACC" position.
- In case the cable is not wound, twist it, as shown in the illustration.
- Even if the rod has not retracted fully, install the antenna nut and inspect the antenna rod operation. It will finally retract fully.

(c) Inspect the antenna rod operation by pushing the radio wave band select buttons.

MOTOR ANTENNA INSPECTION

1. INSPECT MOTOR ANTENNA

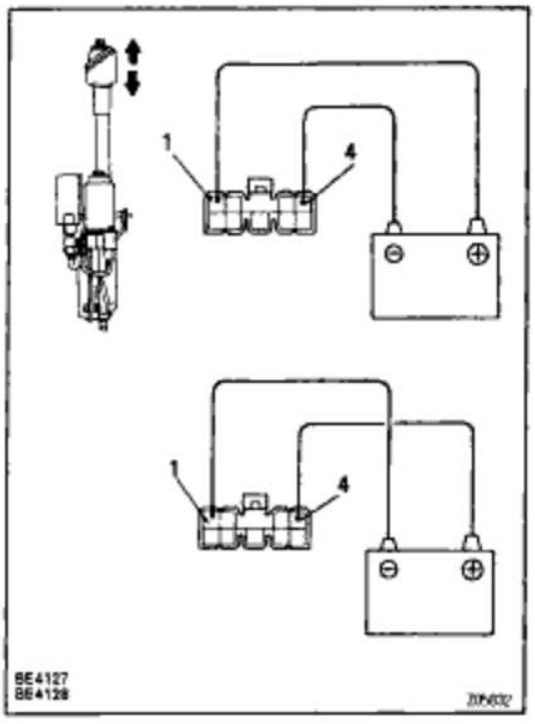
Circuit

Disconnect the motor antenna connector from the body wire harness and inspect the connector on body wire harness side, as shown.

Tester connection to terminal number	Condition	Specified value (Voltage)
2 – Ground	Constant	Battery positive voltage
3 – Ground	Ignition switch ACC or ON and radio switch ON Others	No voltage
3 – Ground	Ignition switch ACC or ON and radio switch ON AM or FM (87.9 – 96.0 MHz)	Battery positive voltage
4 – Ground	Ignition switch ACC or ON Radio switch OFF	No voltage
4 – Ground	Ignition switch ACC or ON Radio switch ON	Battery positive voltage
5 – Ground	Ignition switch position ACC or LOCK	No voltage
5 – Ground	Ignition switch position ON	Battery positive voltage
6 – Ground	Ignition switch position LOCK	No voltage
6 – Ground	Ignition switch position ACC or ON	Battery positive voltage

Tester connection to terminal number	Condition	Specified value (Continuity)
1 – Ground	Constant	Continuity

If circuit is not as specified, inspect radio or wire harness.
If circuit is as specified, replace motor antenna.



2. INSPECT ANTENNA MOTOR

(a) Connect the positive (+) lead from the battery to terminal 1 and negative (–) lead to terminal 4.

(b) Check that the motor turns (moves upward).

NOTICE: These tests must be performed quickly (within 3 – 5 seconds) to prevent the coil from burning out.

(c) Then, reverse the polarity, check that the motor turns the opposite way (moves downward).

NOTICE: These tests must be performed quickly (within 3 – 5 seconds) to prevent the coil from burning out.

If operation is not as specified, replace the motor.



3. INSPECT ANTENNA MOTOR CONTROL RELAY

Relay Circuit

Disconnect the connector from the relay and inspect the connector on wire harness side, as shown in the chart.

Tester connection to terminal number	Condition	Specified value (Continuity)
1–4	Constant	Continuity
2 – Ground	Constant	Continuity
Tester connection to terminal number	**Condition**	**Specified value (Voltage)**
3 – Ground	Constant	Battery positive voltage
5 – Ground	Ignition switch position LOCK	No voltage
5 – Ground	Ignition switch position ACC or ON	Battery positive voltage
6 – Ground	Ignition switch position LOCK	No voltage
6 – Ground	Ignition switch position ACC or ON Radio switch and cassette OFF	No voltage
6 – Ground	Ignition switch position ACC or ON Radio switch or cassette ON	Battery positive voltage
8 – Ground	Ignition switch position LOCK	No voltage
8 – Ground	Ignition switch position ACC or ON Radio switch OFF or casette ON	No voltage
8 – Ground	Ignition switch position ACC or ON Radio switch ON and casette OFF	Battery positive voltage
9 – Ground	Ignition switch position LOCK or ACC	No voltage
9 – Ground	Ignition switch position ON	Battery positive voltage

If circuit is as specified, replace the relay.

GLASS PRINTED ANTENNA INSPECTION

1. INSPECT GLASS PRINTED ANTENNA

(Use same procedure as for "INSPECT DEFOGGER WIRES" on page BE–80.)

2. REPAIR GLASS PRINTED ANTENNA

(Use same procedure as for " REPAIR DEFOGGER WIRES" on page BE–80.)

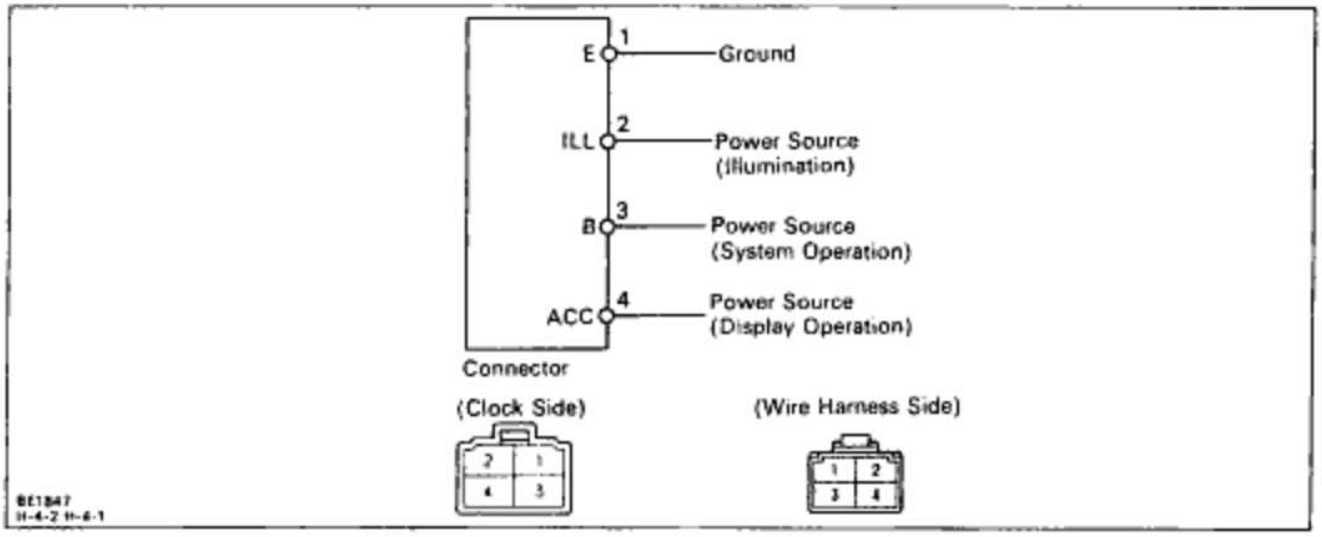
CLOCK

TROUBLESHOOTING

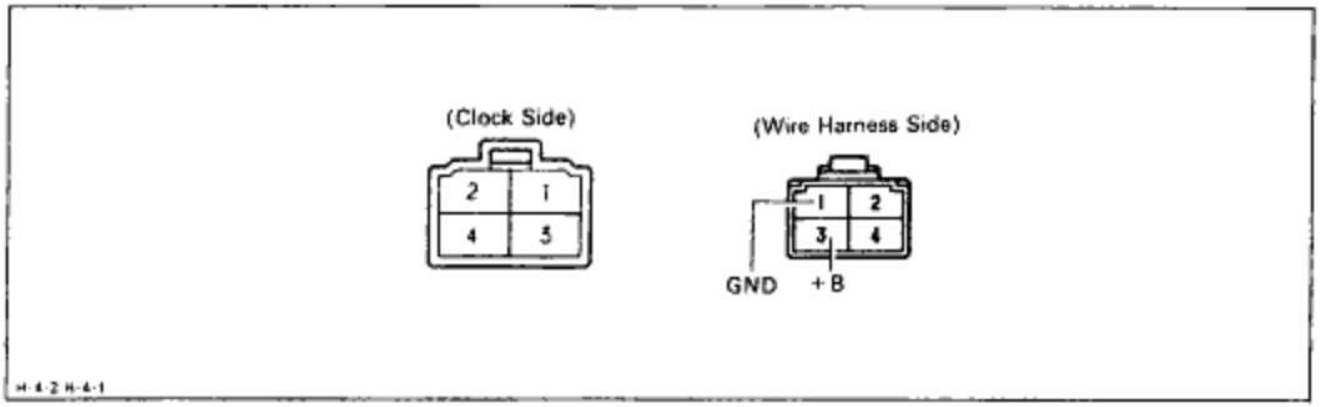
HINT: Troubleshoot the clock according to the table below.

Clock will not operate	1
Clock loses or gains time	2

± 1.5 seconds/day



1 CLOCK WILL NOT OPERATE



(a) Check that the battery positive voltage is 10 – 16 V.
If voltage is not as specified, replace the battery.

(b) Check that the DOME fuse is not blown.
If the fuse is blown, replace the fuse and check for short.

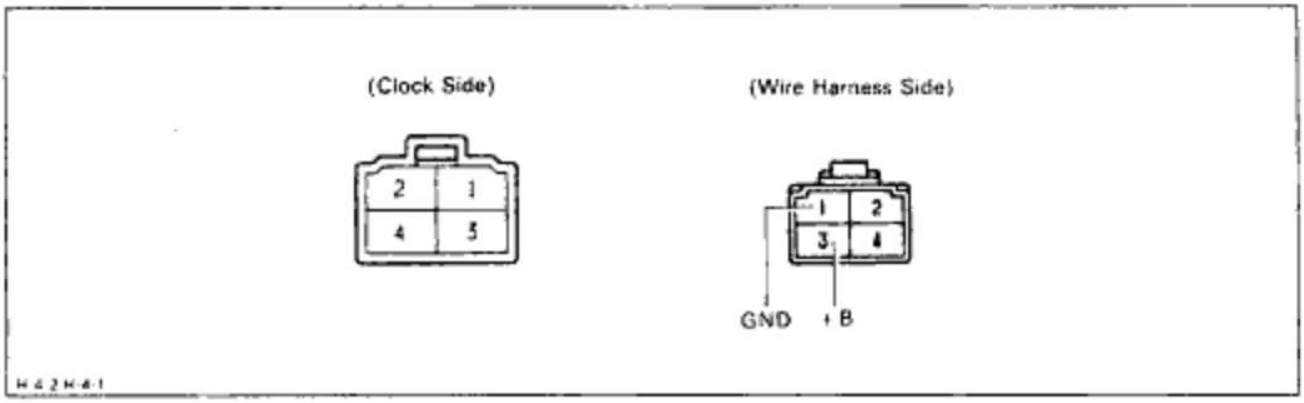
(c) Troubleshoot the clock as follows.

HINT: Inspect the connector on the wire harness side.

Is there battery positive voltage between terminal + B and body ground?
No → Open or short circuit in wire harness between terminal + B and DOME fuse.
Yes
Is there continuity between terminal GND and body ground?
No → Open circuit in wire harness between terminal GND and body ground.
Yes
Replay clock.

2 CLOCK LOSES OR GAINS TIME

(a) Check that the battery positive voltage is 10 – 16 V.
If voltage is not as specified, replace the battery.
(b) Inspect the error of the clock.
Allowable error (per day): ± 1.5 seconds
If the error exceeds the allowable error, replace the clock.
(c) Check that the clock adjusting button is sticking in position and has failed to return.
If the button is not returned, repair or replace the clock.
(d) Troubleshoot the clock as follows.
HINT: Inspect the connector on the wire harness side.



Is there 10 – 16 V between terminal +B and body ground?
Below 10 V → Locate cause and repair, or recharge battery.
Yes
Adjust or replace clock.

– MEMO –

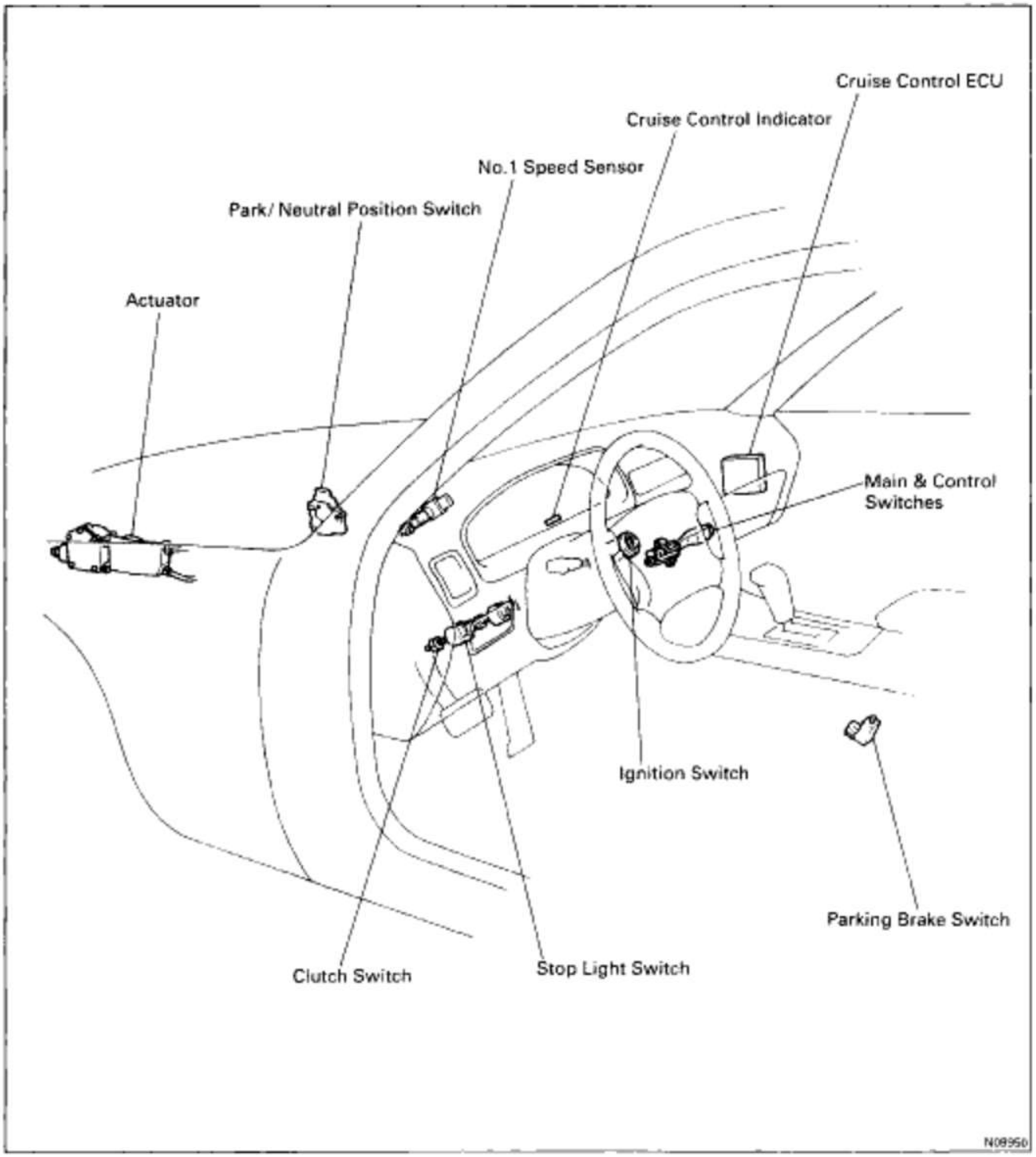
–MEMO –

CRUISE CONTROL SYSTEM

DESCRIPTION

The cruise control system is standard, which is convenient when driving continuously at a constant speed. The cruise control ECU controls all cruise control functions.
A diagnosis function is built in. In the unlikely event of a malfunction in the system, the problem area is detected by the cruise control ECU and it causes the power indicator light on the combination meter to blink, warning the driver that there is an abnormality as well as storing a malfunction code in the ECU memory for the service technician to retrieve.

PARTS LOCATION



HOW TO PROCEED WITH TROUBLESHOOTING

Perform troubleshooting in accordance with the procedure on the following page.

1. CUSTOMER PROBLEM ANALYSIS

Using the customer problem analysis check sheet for reference, ask the customer in as much detail as possible about the problem.

2. CHECK AND CLEAR THE DIAGNOSTIC TROUBLE CODES (PRECHECK)

When there is a problem with the cruise control being canceled or failing to set, first check the diagnostic trouble code if there are any trouble codes stored in memory. If there are trouble codes, make a note of them, then clear them and proceed to "**3** Problem Symptom Confirmation".

3. PROBLEM SYMPTOM CONFIRMATION, 4 SYMPTOM SIMULATION

Confirm the problem symptoms. If the problem does not reappear, be sure to simulate the problem by mainly checking the circuits indicated by the diagnostic trouble code in step **2**, using "Problem Simulation Method".

5. DIAGNOSTIC TROUBLE CODE CHECK

Check the diagnostic trouble codes. Determine if the problem is in the sensors or the wire harness.
If a malfunction code is present, proceed to "**6** Diagnostic Trouble Code Chart". If the normal code is output, proceed to "**7** Matrix Chart Problem Symptoms".
Be sure to proceed to "**6** Diagnostic Trouble Code Chart" after **2** and **3** .
If troubleshooting is attempted after only the first malfunction code in the memory is output, errors could be made in the diagnosis.

6. DIAGNOSTIC TROUBLE CODE CHART

If a trouble code is confirmed in the diagnostic trouble code check, proceed to the check procedure indicated by the matrix chart for each diagnostic code.

7. MATRIX CHART OF PROBLEM SYMPTOMS

If the normal code is confirmed in the diagnostic trouble code check, perform inspection in accordance with the inspection order in the matrix chart of problem symptoms.

8. CIRCUIT INSPECTION

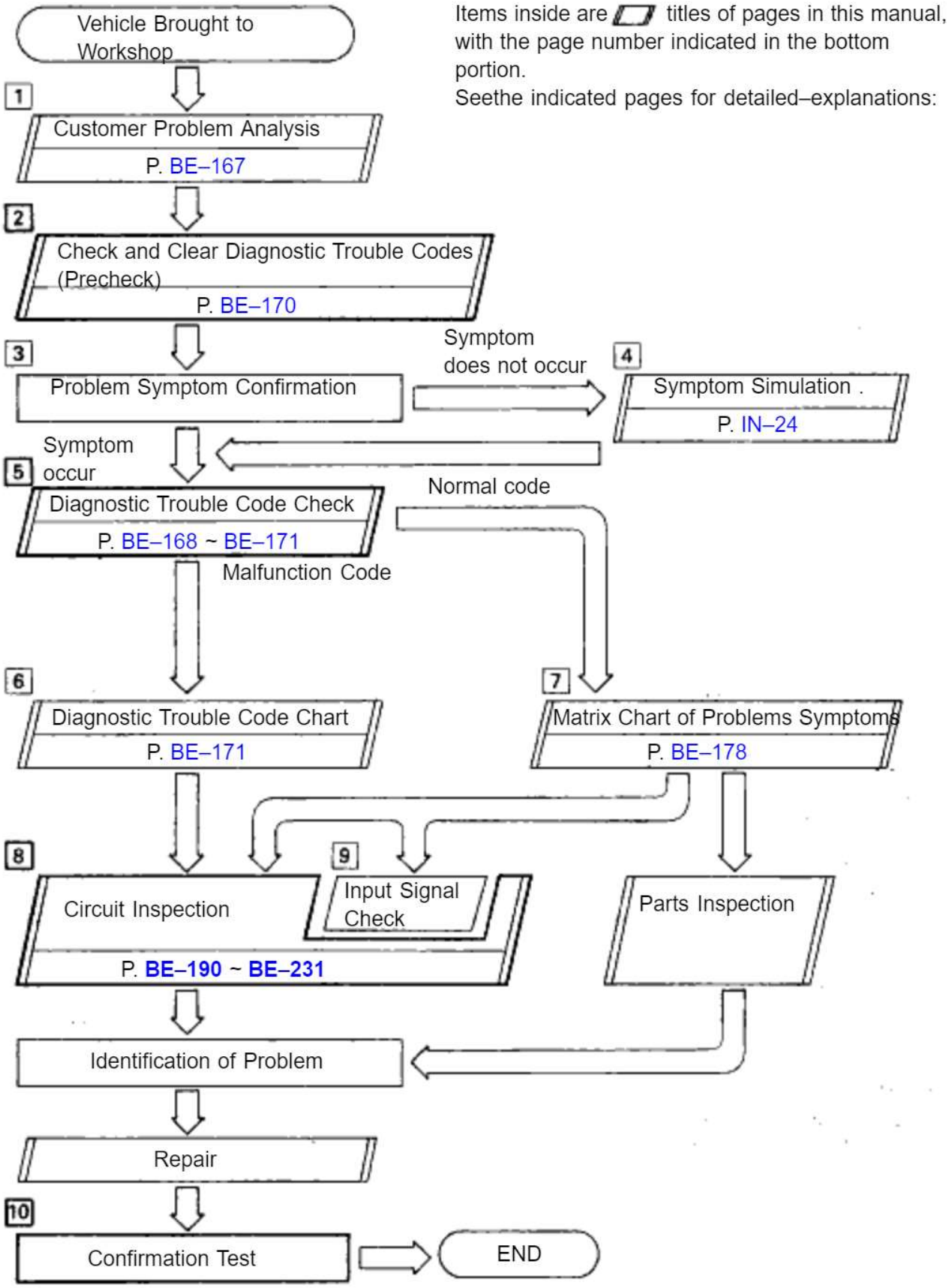
Proceed with diagnosis of each circuit in accordance with the inspection order in **6** and **7** .
Determine whether the cause of the problem is in the sensor, actuators, wire harness and connectors, or the ECU.

9. INPUT SIGNAL CHECK

Check whether signals from the stop light switch and park/neutral position switch, etc. are input normally to the ECU. This check is indicated in the flow chart for each circuit.

10. CONFIRMATION TEST

After completing repairs, confirm not only that the malfunction is eliminated, but also perform a drive test, etc. to make sure the entire cruise control system is operating correctly.



Items inside are titles of pages in this manual, with the page number indicated in the bottom portion.
Seethe indicated pages for detailed–explanations:

Step **2 , 5 , 8 , 10** : Diagnostic steps permitting the use of the TOYOTA hand–held tester or TOYOTA break–out–box.

CUSTOMER PROBLEM ANALYSIS CHECK SHEET

CRUISE CONTROL Check Sheet

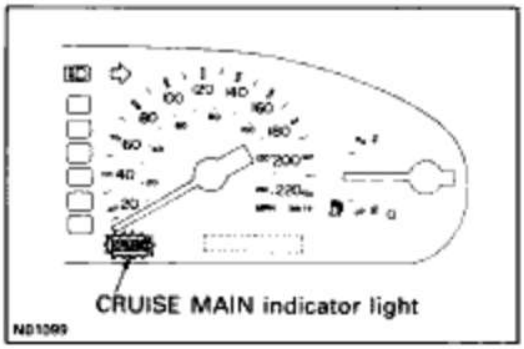
Inspector's Name

Customer's Name		Registration No.	
		Registration Year	/ /
		Frame No.	
Date of Vehicle Brought In	/ /	Odometer Reading	Km Miles

Condition of Problem Occurrence	Date of Problem Occurrence	/ /
	How Often Does Problem Occur ?	☐ Continuous ☐ Intermittent (Times a day)
	Vehicle Speed when Problem Occurred	km/h mile/h

Symptoms	☐ Auto cancel occurs	• Driving condition ☐ City driving ☐ Freeway ☐ Up hill ☐ Down hill • After cancel occurred, did the driver activate cruise control again ? ☐ Yes ☐ No
	☐ Cancel does not occur	☐ With brake ON ☐ With parking brake ON ☐ With clutch ON ☐ During N position shift ☐ At 40 km/h (25 mph) or less ☐ When control SW turns to CANCEL position
	☐ Cruise control malfunction	☐ Slip to acceleration side ☐ Slip to aeceleration side ☐ Hunting occurs ☐ O/D cut off does not occur ☐ O/D does not return
	☐ Switch malfunction	☐ SET ☐ ACCEL. ☐ COAST ☐ RESUME ☐ CANCEL
	☐ Faulty CRUISE MAIN indicator light	☐ Remains ON ☐ Does not light up ☐ Blinking

Diagnostic Trouble Code Check	1st Time	☐ Normal Code	☐ Malfunction Code (Code)
	2nd Time	☐ Normal Code	☐ Malfunction Code (Code)

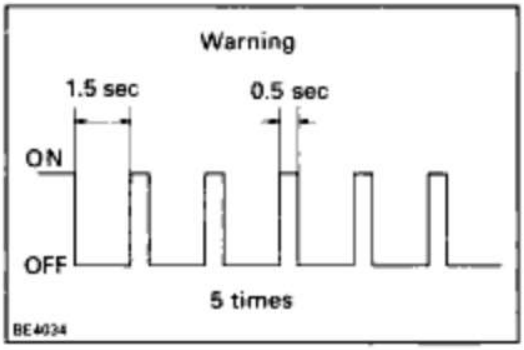


DIAGNOSIS SYSTEM

INDICATOR CHECK

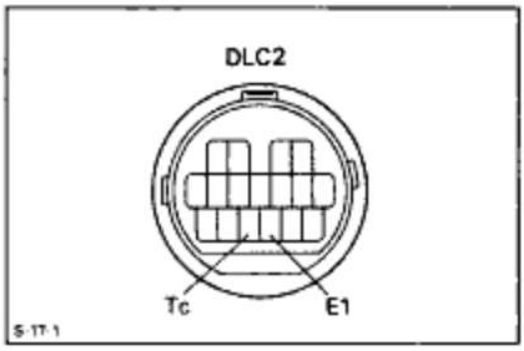
1. Turn the ignition switch to ON.
2. Check that the CRUISE MAIN indicator light comes on when the cruise control main switch is turned on, and that the indicator light goes oft when the main switch is turned OFF.

HINT: If the indicator check result is not normal, pro–ceed to troubleshooting (See page BE–65) for the com–bination meter section.



DIAGNOSTIC TROUBLE CODE CHECK

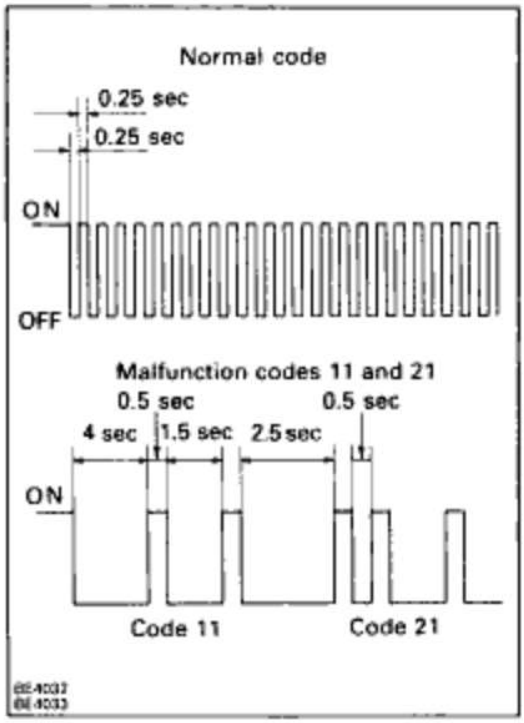
HINT: If a malfunction occurs in the speed sensors or actuator, etc. during cruise control driving, the ECU actuates AUTO CANCEL of the cruise control and blinks the CRUISE MAIN indicator light 5 times to inform the driver of a malfunction. At the same time, the malfunction is stored in memory as a diagnostic trouble code.



Output of Diagnostic Trouble Code

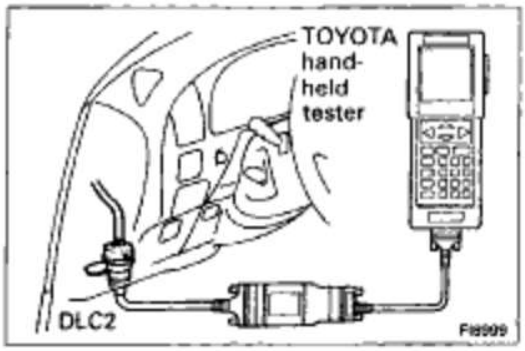
Using diagnosis check wire:

1. Turn the ignition switch ON.
2. Using SST, connect terminals Tc and E_1 of DLC2.
3. Read the diagnostic trouble code on the CRUISE MAIN in–dicator light.
   HINT: If the diagnostic trouble code is not output, in–spect the Tc circuit (See page BE–230).



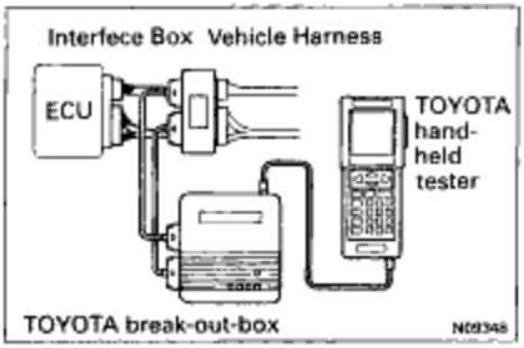
As an example, the blinking patterns for codes; normal, 11 and 21 are shown in the illustration.

4. Check for the problem using the diagnostic trouble code table on the next page.
5. After completing the check, disconnect terminals Tc and E_1, and turn off the display.



ECU DATA MONITOR USING TOYOTA HAND–HELD TESTER

1. Hook up the TOYOTA hand–held tester to the DLC2.
2. Monitor the ECU data by following the prompts on the tester screen.
   HINT: TOYOTA hand–held tester had a ”Snapshot” function which records the monitored data.
   Please refer to the TOYOTA hand–held tester operator’s manual for further details.



ECU TERMINAL VALUES MEASUREMENT USING TOYOTA BREAK–OUT–BOX AND TOYOTA HAND–HELD TESTER

1. Hook up the TOYOTA hand–held tester and TOYOTA break–out–box to the vehicle.
2. Read the ECU input/output values by following the prompts on the tester screen.
   HINT: TOYOTA hand–held tester has a ”Snapshot” func–tion.
   This records the measured values and is effective in the diagnosis of intermittent problems.
   Please refer to the TOYOTA hand–held tester/TOYOTA break out–box operators manual for further details.

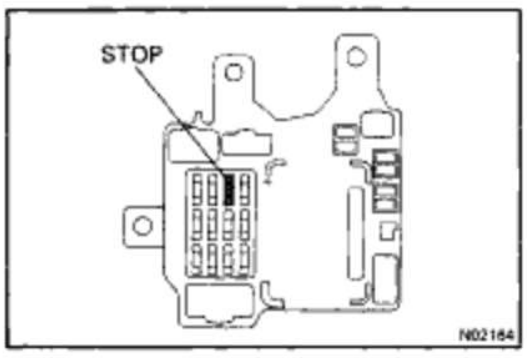
DIAGNOSTIC TROUBLE CODE

Code No.	CRUISE MAIN Indicator Light Blinking Pattern	Diagnosis
–	ON OFF  BE3931	Normal
11	ON OFF  BE3931	• Duty ratio of 100% output to motor acceleration side. • Overcurrent (short) in motor circuit.
12	ON OFF  BE3931	• Overcurrent (short) in magnet clutch circuit. • Open in magnet clutch circuit.
13	ON OFF  BE3931	• Open in actuator motor circuit. • Position sensor detects abnormal voltage. • Position sensor signal value does not change when the motor operates.
21	ON OFF  BE3932	• Speed signal is not input to the ECU.
*23	ON OFF  BE3932	• Actual vehicle speed has dropped by 16 km/h (10 mph) or more below the set speed during cruising.
32	ON OFF  BE3933	• Short in control switch circuit.
34	ON OFF  BE3933	• Voltage abnormality in control switch circuit.

When 41 code is indicated, replace the cruise control ECU.

41	ON OFF  BE3934	

HINT: When 2 or more codes are indicated, the lowest numbered code will be displayed first.
(*) When the vehicle speed is reduced on uphill roads, the speed can be set again and driving continued. (This is not a malfunction.)



Diagnostic Trouble Code Clearance

1. After completing repairs the diagnostic trouble code retained in memory can be cleared by removing the STOP fuse for 10 seconds or more, with the ignition switch off.
2. Check that the normal code is displayed after connecting the fuse.

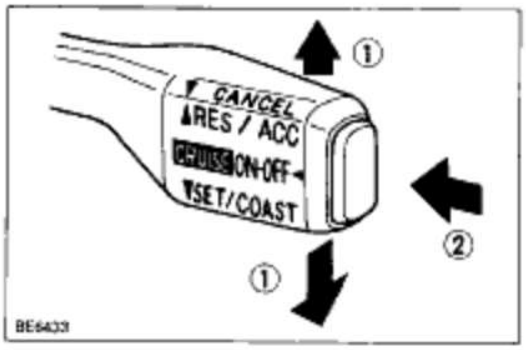
DIAGNOSTIC TROUBLE CODE CHART

If a malfunction code is displayed during the diagnostic trouble code check, check the circuit listed for that code in the table below and proceed to the page given.

Code No.	Circuit Inspection	Page
11	• Actuator Motor Circuit	BE–190
12	• Actuator Magnet Clutch Circuit	BE–192
13	• Actuator Motor Circuit • Actuator Position Sensor Circuit	BE–190 BE–196
21	• Speed Sensor Circuit	BE–198
23	• Actuator Control Cable • Speed Sensor Circuit • Actuator Motor Circuit	BE–232 BE–198 BE–190
32,34	• Control switch circuit. (cruise control switch	BE–202

HINT:

1. If the instruction ”Proceed to next circuit inspection shown on matrix chart” is given in the flow chart for each circuit, proceed to the circuit with the next highest number in the table to continue the check.
2. If the trouble still reappears even though there are no abnormalities in any of the other circuits, then check or replace the Cruise control ECU as the last step.

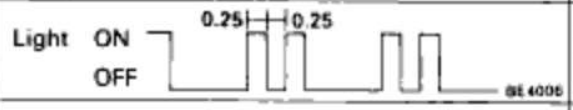
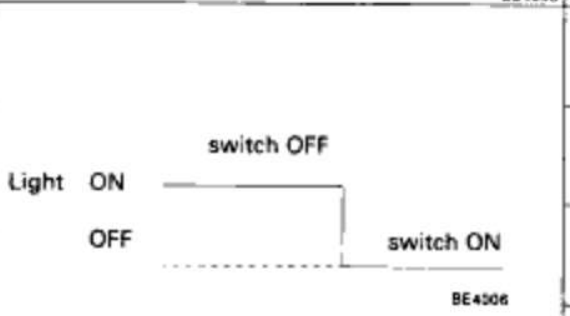
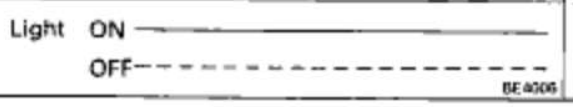


INPUT SIGNAL CHECK

Output of Code

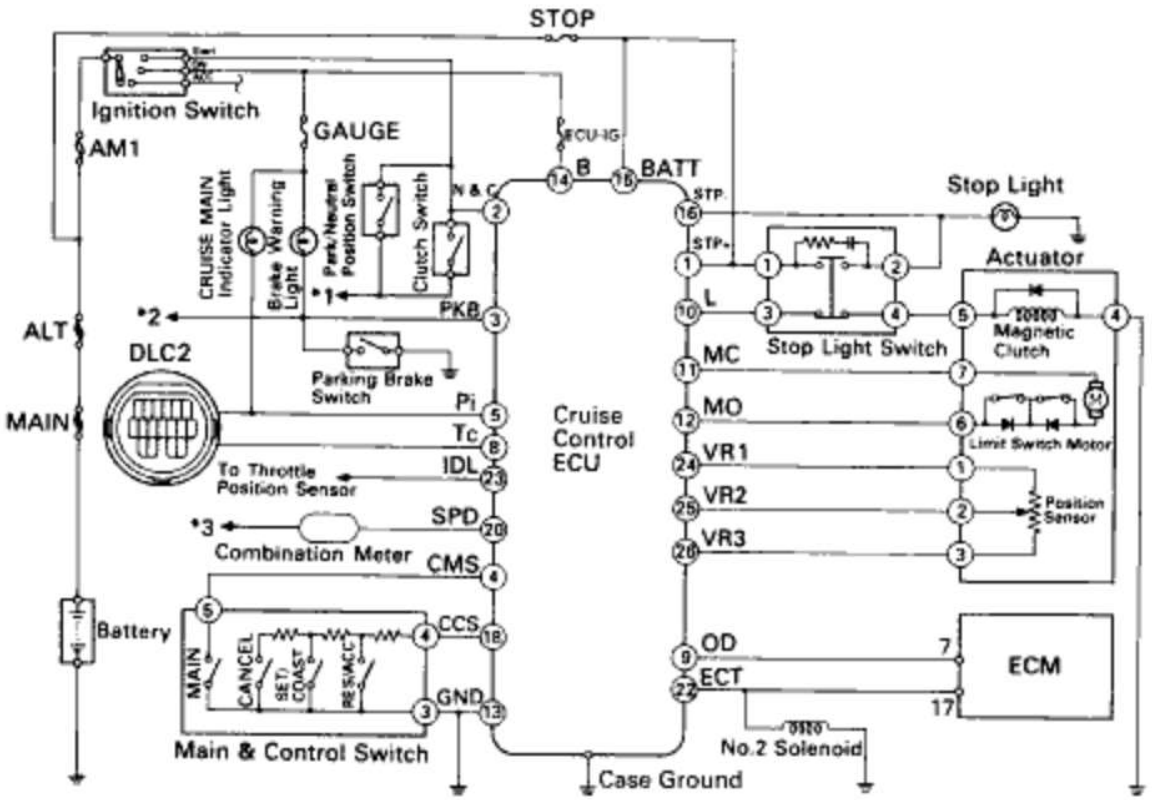
1. (a) For check No. 1 – No.2
   Turn the ignition switch on.
   (b) For check No.3 – No.7
   (1) Turn the ignition switch on.
   (2) Shift to D position.
   (e) For check No.8 – No.9
   (1) Jack up the vehicle.
   (2) Start the engine. (3) shift to D position.
2. Press the control switch to SET/COAST or RES/ACC posi–tion and hold it down **1** or up **1**.
3. Push the main switch on **2**.
4. Check that the CRUISE MAIN indicator light blinks twice or 3 times repeatedly after 3 seconds.
5. Turn the SET/COAST or RES/ACC switch oft.
6. Operate each switch as listed in the table below.
7. Read the blinking pattern of the CRUISE MAIN indicator light.
8. After performing the check, turn the main switch oft.

HINT: When two or more signals are input to the ECU, only the lowest–numbered code is displayed.

No.	Operation Method	CRUISE MAIN Indicator Light Blinking Pattern	Diagnosis
1	Turn SET/COAST switch ON.		SET/COAST switch circuit is norm al.
2	Turn RES/ACC switch ON.		RES/ACC switch circuit is normal.
3	Turn CANCEL switch ON.		CANCEL switch circuit is normal.
4	Turn stop light switch ON. (Depress brake pedal)		Stop light switch circuit is normal.
5	Turn parking brake switch ON.		Par–king brake switch circuit is normal.
6	Turn park/neutral position switch ON. (Shift to N or P position.)		Park/Neutral Position switch circuit is normal.
7	Turn clutch start switch ON. (Depress clutch pedal.)		Clutch switch circuit is normal.
8	Drive at 40 km/h (25 mph) or higher.		Speed sensor is normal.
9	Drive at 40 km/h (25 mph) or below.		

– MEMO –

WIRING DIAGRAM

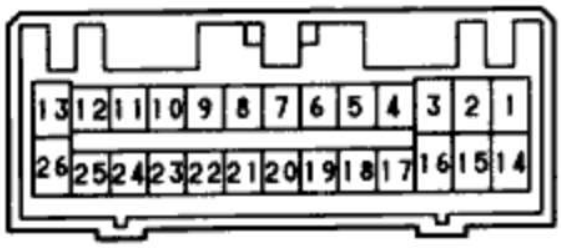


*1 : To Stater Relay
*2 : To Regulator
*3 : To No.1 Speed Sensor

N01272

TERMINALS OF ECU

CRUISE Control ECU



Vd-26-2-B

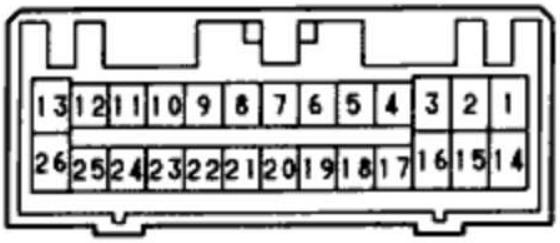
No.	Symbol	Terminal Name	No.	Symbol	Terminal Name
1	STP+	Stop Light Switch	14	B	Power Source
2	N & C	Park/Neutral Position Switch or Clutch Switch	15	BATT	Backup Power Source
3	PKB	Parking Brake Switch	16	STP-	Stop Light Switch
4	CMS	Cruise Main Switch	17	–	–
5	Pi	CRUISE MAIN Indicator Light	18	CCS	CRUISE Control Switch
6	–	–	19	–	–
7	–	–	20	SPD	Speed Sensor
8	Tc	DLC2	21	–	–
9	OD	ECM	22	ECT	Electronically Controlled Transaxle No. 2 Solenoid
10	L	Magnet Clutch (Actuator)	23	IDL	Throttle Position Sensor
11	MC	Motor (Actuator)	24	VR1	Position Sensor (Actuator)
12	MO	Motor (Actuator)	25	VR2	Position Sensor (Actuator)
13	GND	Ground	26	VR3	Position Sensor (Actuator)

STANDARD VALUE OF ECU TERMINAL

Terminals	Symbols	Wiring Color	Condition	Standard Value
C19-1 ← → C19-13	STP+ ← → GND	G-R ← → W-B	Always	10 – 14 V
C19-2 ← → C19-13	N&C ← → GND	B ← → W-B	IG ON. Depress clutch pedal or P or N positions	Below 1 V
			IG ON. Release clutch pedal and other positions.	10 – 14 V
C19-3 ← → C19-13	PKB ← → GND	R-W ← → W-B	IG ON. Parking brake is operating.	Below 1 V
			IG ON. Parking brake is not operating.	10 – 14 V
C19-4 ← → C19-13	CMS ← → GND	W-L ← → W-B	IG ON. Main switch hold ON. (Indicator light ON)	Below 1 V
			IG ON. Main switch OFF. (Indicator light OFF.)	10 – 14 V
C19-5 ← → C19-13	Pi ← → GND	G-L ← → W-B	IG ON. Main switch ON. Main indicator light ON.	Below 1 V
			IG ON. Main switch OFF. Main indicator light OFF.	10 – 14 V
C19-8 ← → C19-13	TC ← → GND	LG-R ← → W-B	Ignition switch ON.	10 – 14 V
C19-9 ← → C19-13	OD ← → GND	Y-B ← → W-B	Ex. during cruise control driving.	10 – 14 V
			During cruise control driving and O/D switch OFF (3rd driving)	Below 1 V
C19-10 ← → C19-13	L ← → GND	G-B ← → W-B	During cruise control driving.	10 – 14 V
			Ex. during cruise control driving.	Below 1 V
C19-11 ← → C19-13	MC ← → GND	R-B ← → W-B	During cruise control driving and SET/COAST Switch hold ON.	8 – 14 V
			Ex. during cruise control driving.	Below 1 V
C19-12 ← → C19-13	MO ← → GND	R-G ← → W-B	During cruise control driving.	8 – 14 V
			Ex. during cruise control driving.	Below 1 V
C19-13 ← → Body Ground	GND ← → Body Ground	W-B ← → Body Ground	Always	Below 1 V
C19-14 ← → C19-13	B ← → GND	B-R ← → W-B	Ignition switch ON.	10 – 14 V
C19-15 ← → C19-13	BATT ← → GND	G-R ← → W-B	Always	10 – 14 V

Terminals	Symbols	Wiring color	Condition	Standard Value
C19-16 ← → C19-13	STP ← → GND	G-W ← → W-B	Depress brake pedal.	10 – 14 V
			Release brake pedal.	Below 1 V
C19-18 ← → C19-13	CCS ← → GND	W ← → W-B	IG ON. Main switch ON. Switch neutral position.	10 – 14 V
			IG ON. Main switch ON. CANCEL Switch hold ON.	4.2 – 8.7 V
			IG ON. Main switch ON. SET/COAST Switch hold ON.	2.5 – 6.2 V
			IG ON. Main switch ON. RESUME/ACCEL Switch hold ON.	0.8 – 3.6 V
C19-20 ← → C19-13	SPD ← → GND	V-Y ← → W-B	English start. Stop a vehicle.	4.5 – 5.5 V
			During driving.	Repeatedly changes from Below 1V to 4.5 – 5.5 V
C19-22 ← → C19-13	ECT ← → GND	V-R ← → W-B	During cruise control. driving. O/D Switch ON.	Below 1 V
			During cruise control driving. O/D Switch OFF (3rd driving)	10 – 14 V
C19-23 ← → C19-13	IDL ← → GND	L ← → W-B	IG ON. Throttle valve fully opened.	10 – 14 V
			IG ON. Throttle valve fully closed.	Below 1 V
C19-24 ← → C19-13	VR1 ← → GND	L ← → W-B	Ignition switch ON.	4.5 – 5.5 V
C19-25 ← → C19-26	VR2 ← → VR3	L-B ← → P	During cruise control driving.	1.1 – 4.5 V
			IG ON. Control plate fully opened.	3.8 – 4.5 V
			IG ON. Control plate fully closed.	1.1 – 1.4 V
C19-26 ← → C19-13	VR3 ← → GND	L-R ← → W-B	Always	Below 1 V

CRUISE Control ECU



Vd-26-2-B

MATRIX CHART OF PROBLEM SYMPTOMS

If a normal code is displayed during the diagnostic trouble code check but the trouble still occurs (re-appears), perform troubleshooting for each problem symptom, checking the circuits for each symptom in the order given in the table below. Proceed to the page located for each circuit.

See Page / Suspect Area / Symptom	BE–190 BE–192 BE–196 Actuator	BE–198 Speed Sensor Circuit	BE–202 Control Switch Circuit (Cruise Control Switch)	BE–206 Stop Light Switch Circuit	BE–210 Idle Switch Circuit (main throttle position sensor)	BE–212 Electrically Controlled Transaxle Communication Circuit	BE–216 Parking Brake Switch Circuit
SET not occurring or CANCEL occurring. (Diag. trouble code is Normal)	8	2	3	4			7
SET not occurring or CANCEL occurring. Diag trouble code does not output.							
Actual vehicle speed deviates above or below the set speed.	4	2			5	3	
Gear shifting is frequent between 3rd and OD when driving on uphill road. (Hunting)						1	
Cruise control not cancelled, even when parking brake pedal is depressed.	3			1			
Cruise control not cancelled, even when parking brake is operating.	3						1
Cruise control not cancelled, even when clutch pedal is depressed.	3						
Cruise control not cancelled, even when transaxle is shifted to "N" position.	3						
Control switch does not operate. (SET/COAST, ACC/RES, CANCEL not possible)	3		1				
SET possible at 44 km/h (25 mph) or less, or CANCEL does not operate at 40 km/h (25 mph) or less.	3	1					
Poor response in ACCEL and RESUME modes.	3					2	
O/D does not Resume, even though the road is not uphill.						1	
Diagnostic trouble code memory is erased.							
Diagnostic trouble code is not output, or is output when it should not be.							
Cruise MAIN indicator light remains ON or fail to light up.	Combination meter troubleshooting on page BE–65.						

HINT:

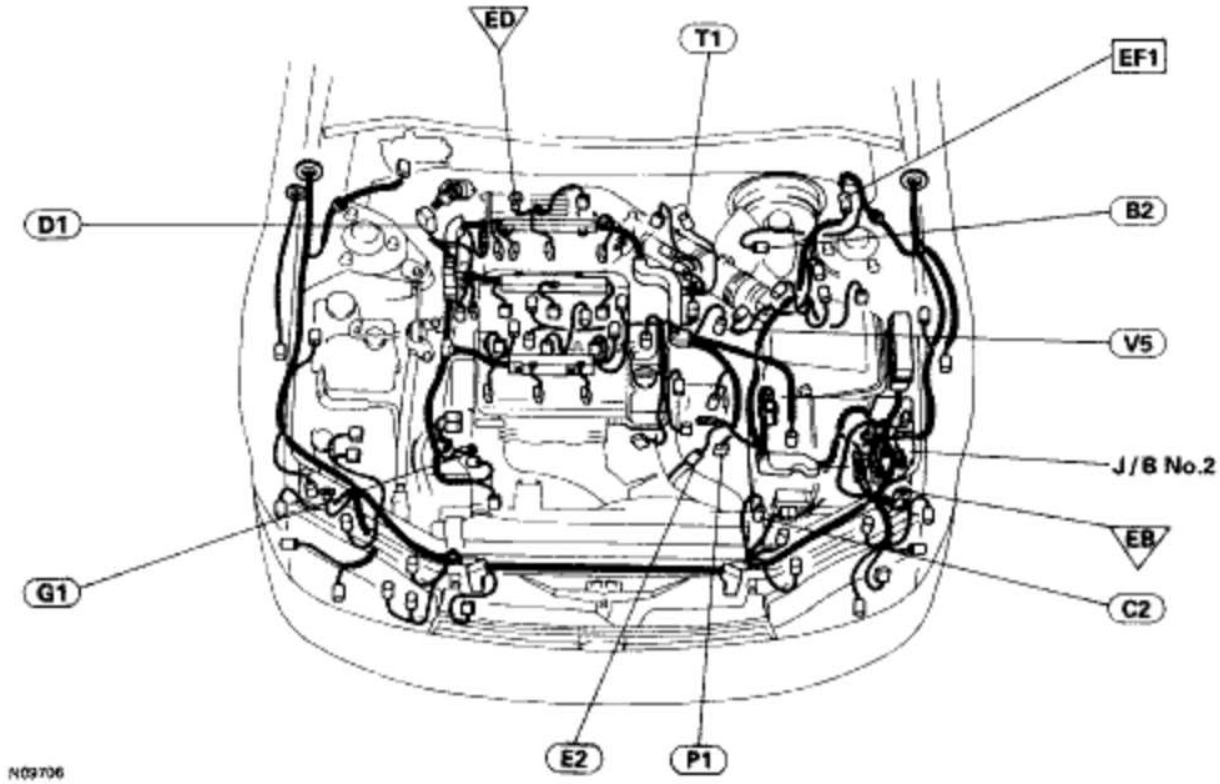
1. If the instruction "Proceed to next circuit inspection shown on matrix chart" is given in the flow chart for each circuit, proceed to the circuit with the next highest number in the table to continue the check.
2. If the trouble still reappears even though there are no abnormalities in any of the other circuits, then check or replace the cruise control ECU as the last step.

See Page / Suspect Area / Symptom	Park/Neutral Position Switch Circuit (BE–218)	Clutch switch Circuit (BE–220)	ECU Power Source Circuit (BE–222)	Back–up Power Source Circuit (BE–226)	Main Switch Circuit (Cruise Control Switch) (BE–228)	TC Terminal Circuit (BE–230)	Actuator Control Cable (BE–232)	Cruise Control ECU (IN–36)
SET not occurring or CANCEL occurring. (Diag. trouble code is Normal)	5	6			1			9
SET not occurring or CANCEL occurring. Diag trouble code does not output.			1					2
Actual vehicle speed deviates above or below the set speed.							1	6
Gear shifting is frequent between 3rd and OD when driving on uphill road. (Hunting)								3
Cruise control not cancelled, even when parking brake pedal is depressed.								2
Cruise control not cancelled, even when parking brake is operating.								2
Cruise control not cancelled, even when clutch pedal is depressed.		1						2
Cruise control not cancelled, even when transmission is shifted to "N" position.	1							2
Control switch does not operate. (SET/COAST, ACC/RES, CANCEL not possible)								2
SET possible at 40 km/h (25 mph) or less, or CANCEL does not operate at 40 km/h (25 mph) or less.								2
Poor response in ACCEL and RESUME modes.							1	4
O/D does not Resume, even though the road is not uphill.								2
Diagnostic trouble code memory is erased.				1				2
Diagnostic trouble code is not output, or is output when is should not be.						1		2
Cruise MAIN indicator light remains ON or fall to light up.	Combination meter troubleshooting on page BE–65							

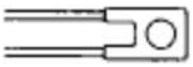
LOCATION OF CONNECTORS

Location of Connectors in Engine Compartment

1MZ-FE



G1
Generator



N09951

B2
Brake Fluid Level Switch



Ie-2-1D

D1
Data Link Connector 1



Ie-23-1

C2
Cruise Control Actuator



Ie-7-1

E2
Solenoid



Ie-6-1

P1
Park/Neutral Position Switch (A/T)



Ie-10-1-B

T1
Throttle Position Sensor



IS-4-1-A

V5
Vehicle Speed Sensor



Ie-3-1-G

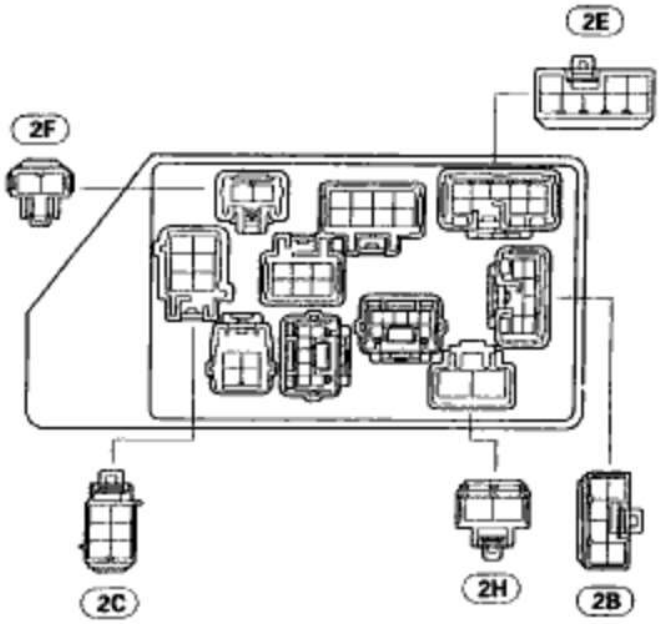
1 MZ–FE

EF1

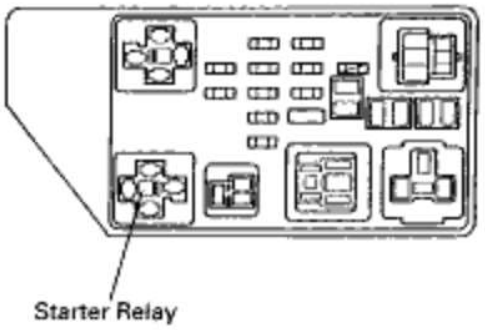


Fig-4-1 Fig-4-2

J/B No.2

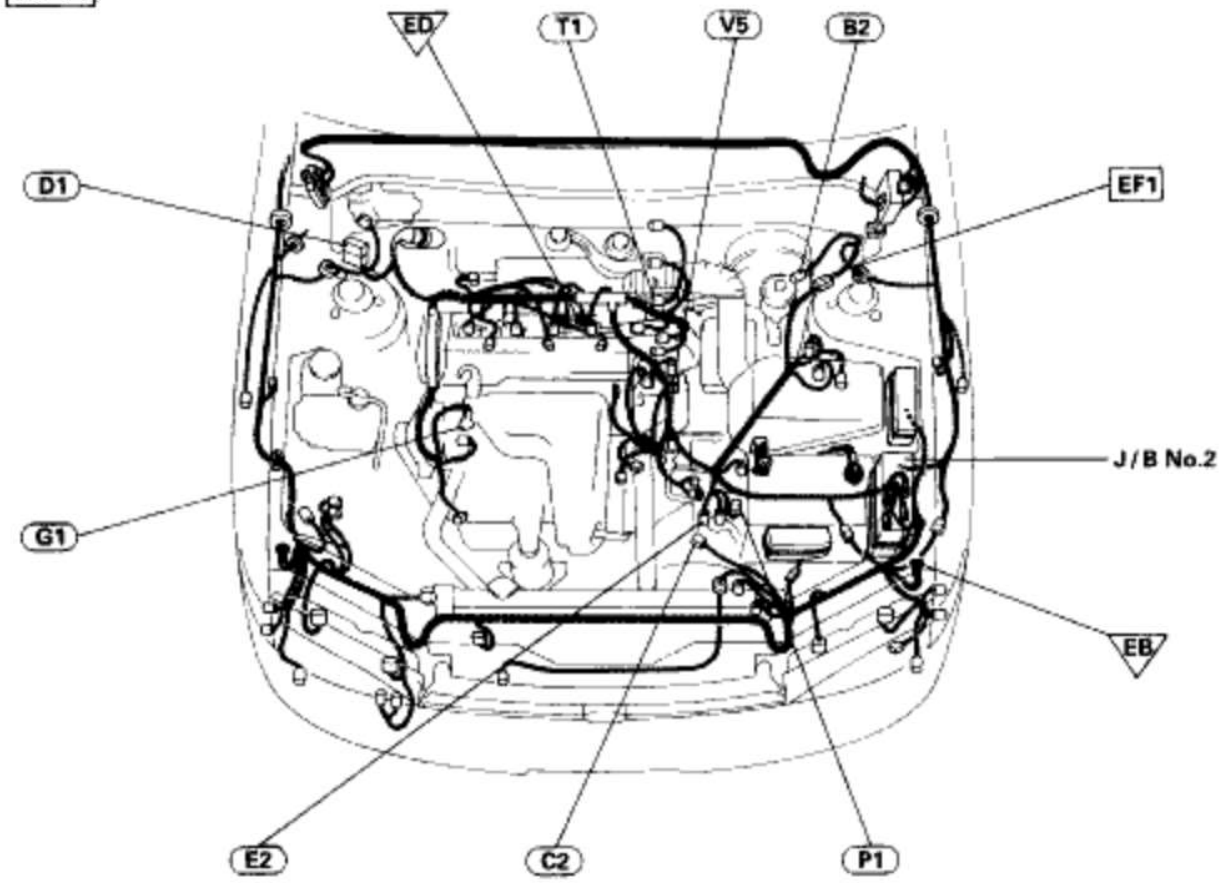


N09716



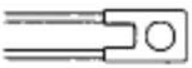
N09707

5S–FE



N09708

G1
Generator



N09951

B2
Brake Fluid Level Switch



le-2-1-D

D1
Data Link Connector 1



lej-23-1-A

C2
Cruise Control Actuator



le-7-1

E2
Solenoid



le-3-1-G

P1
Park/Neutral Position Switch (A/T)



le-10-1-B

T1
Throttle Position Sensor



IS-4-1-C

V5
Vehicle Speed Sensor



le-3-1-G

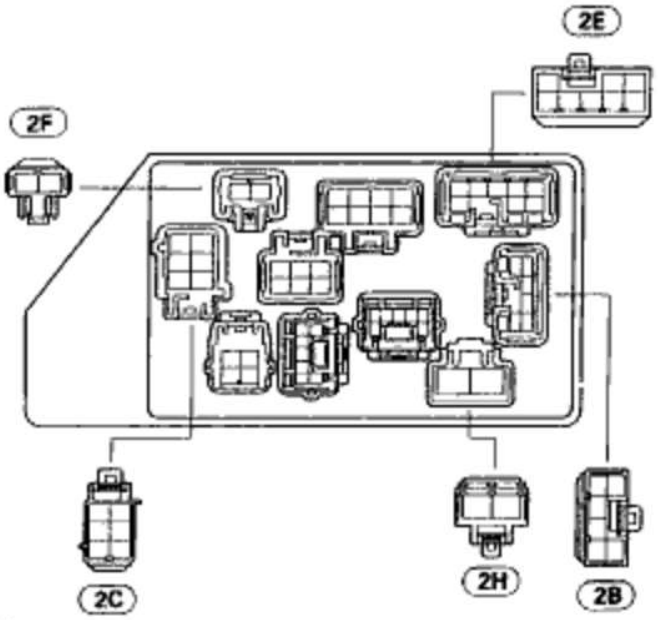
5S–FE

EF1

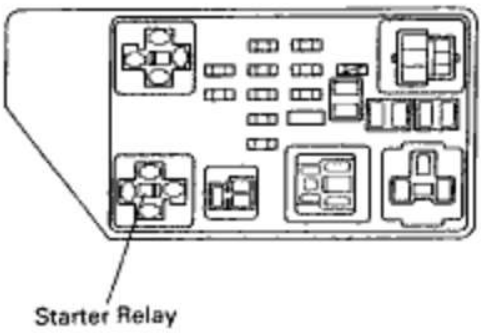


Hg-4-1 Hg-4-2

J/B No.2

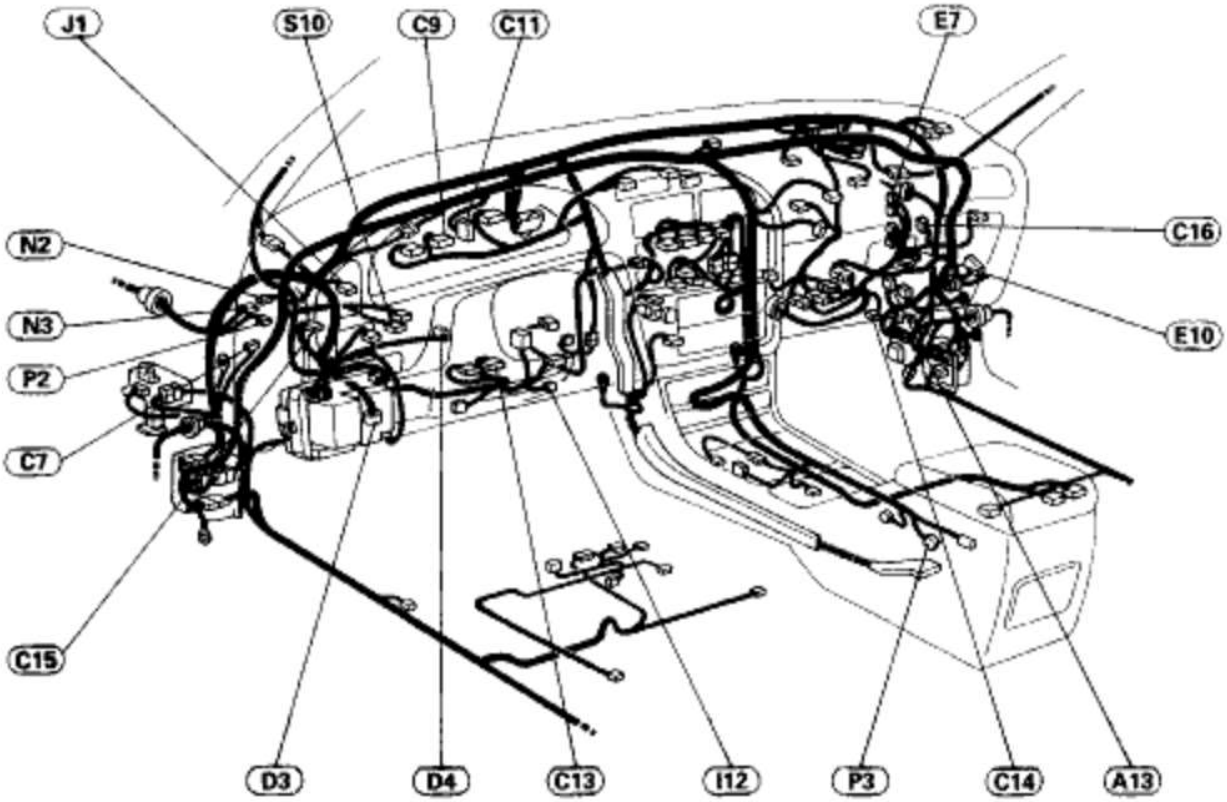


N09716



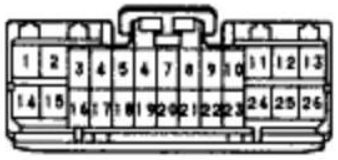
N09707

Location of Connectors in Instrument Panel



N09709

A13
ABS ECU



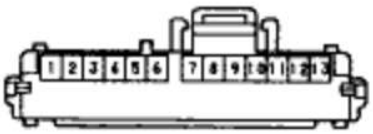
mn-28-1

C7
Clutch Start Switch (M/T)



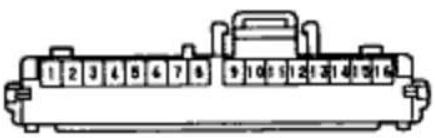
e-2-1

C11
Combination Meter



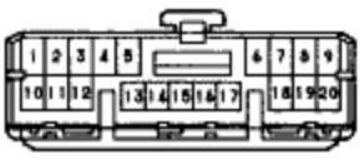
j-13-1-A

C9
Combination Meter



j-18-1

C13
Combination Switch



m-20-1

C15
Cruise Control Clutch Switch



e-2-1-H

C16

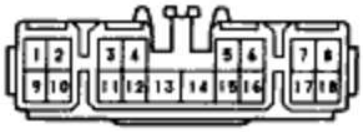
Cruise Control ECU



mn-26-1-B

D4

Daytime Running Light Relay (Canada)



e-18-1

I12

Ignition Switch



e-10-1

N2

Noise Filter



g-2-2

N3

Noise Filter



g-2-1

P2

Parking Brake Switch 1MZ-FE



e-1-2-A

P3

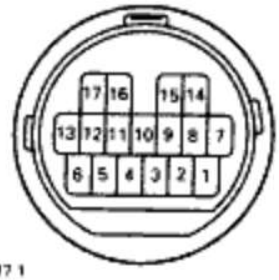
Parking Brake Switch 5S-FE



e-1-1

D3

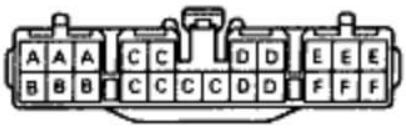
DLC2



S-17-1

J1

Junction Connector



e-22-1-A

S10

Stop Light Switch



eg-4-1

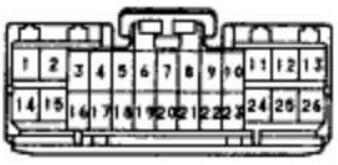
E7

1MZ-FE



n-34-1

5S-FE (A/T)



mn-26-1

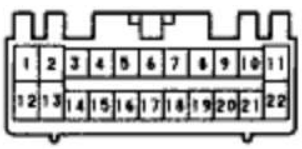
E10

1MZ-FE



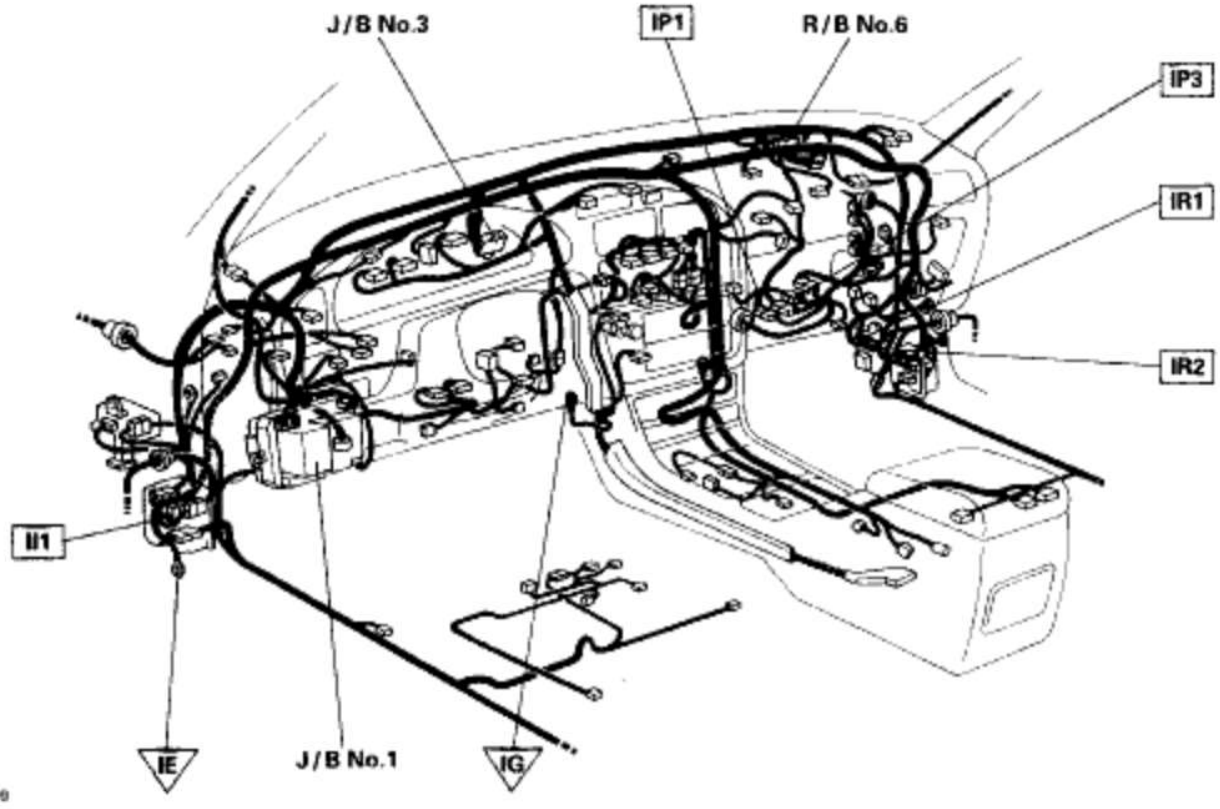
n-28-1

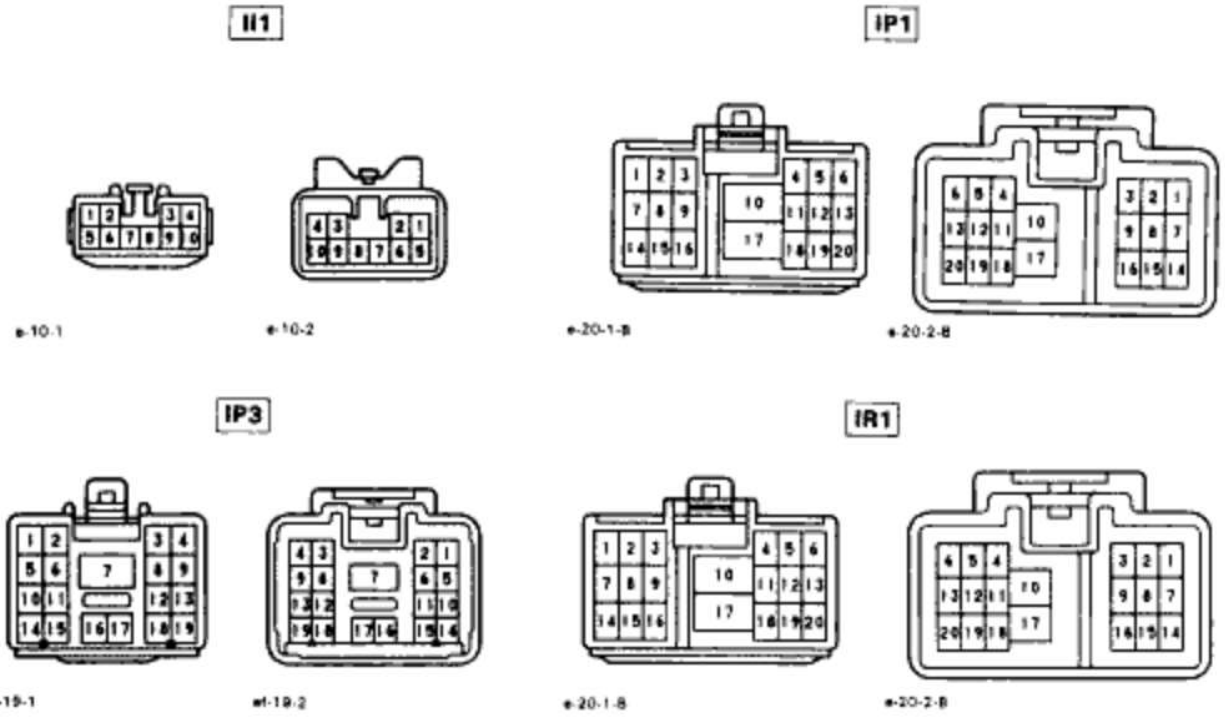
5S-FE (A/T)

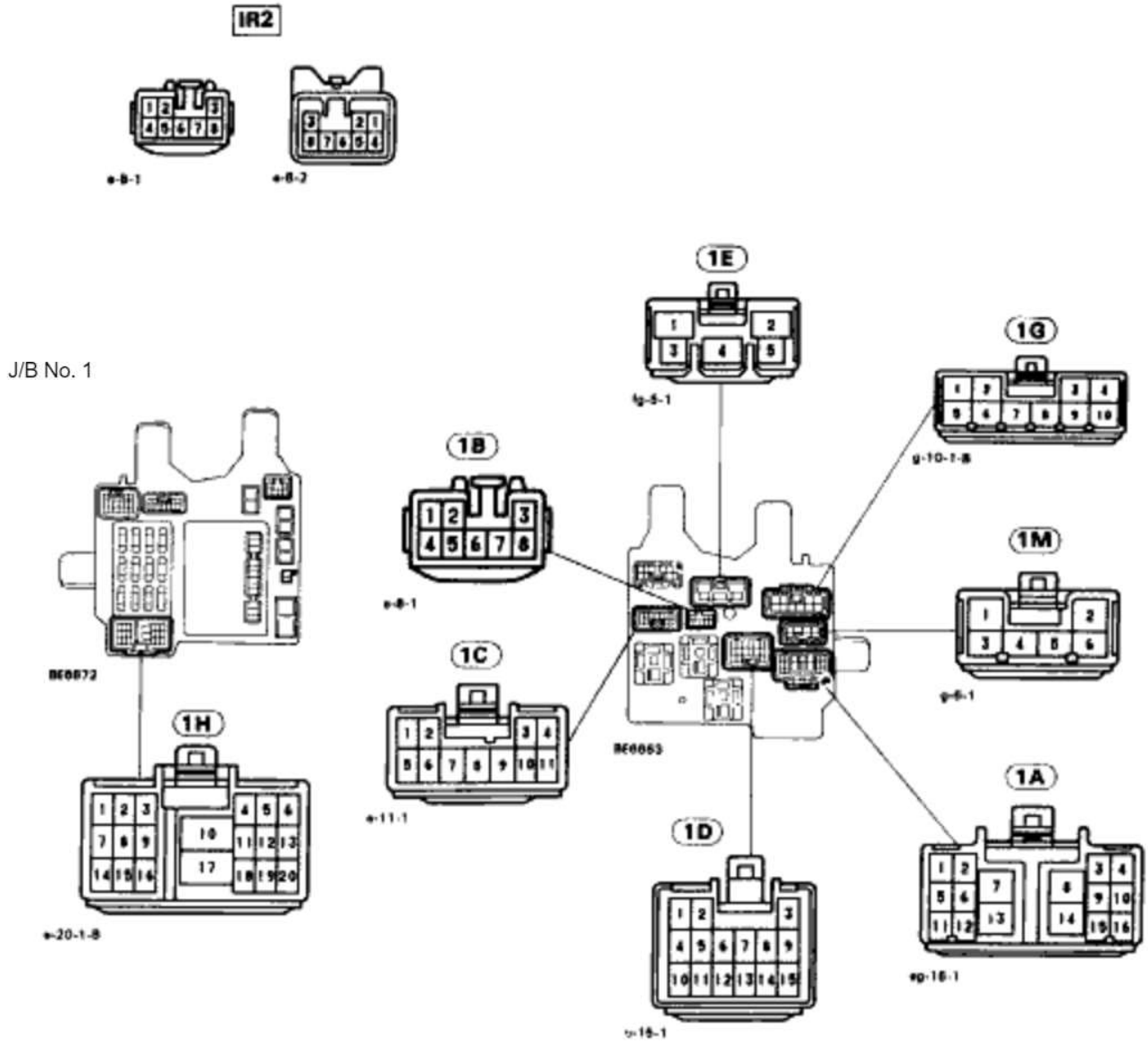


mn-22-1

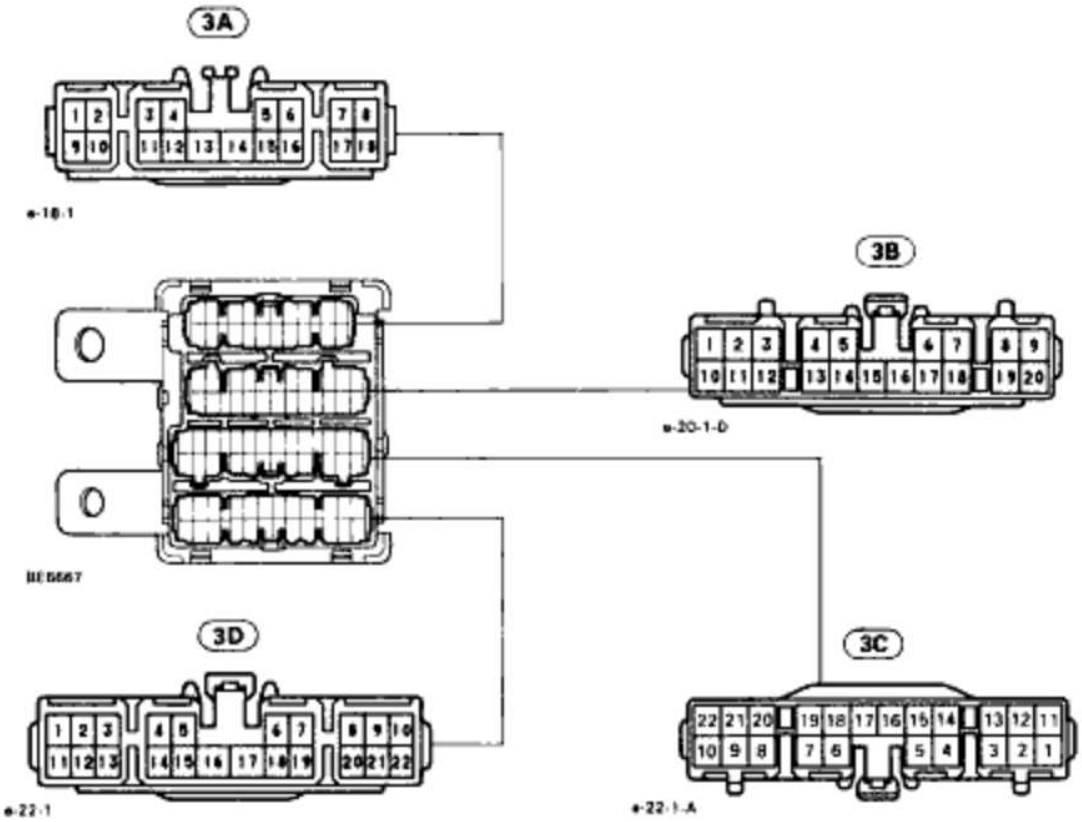
Location of Connectors in Instrument Panel



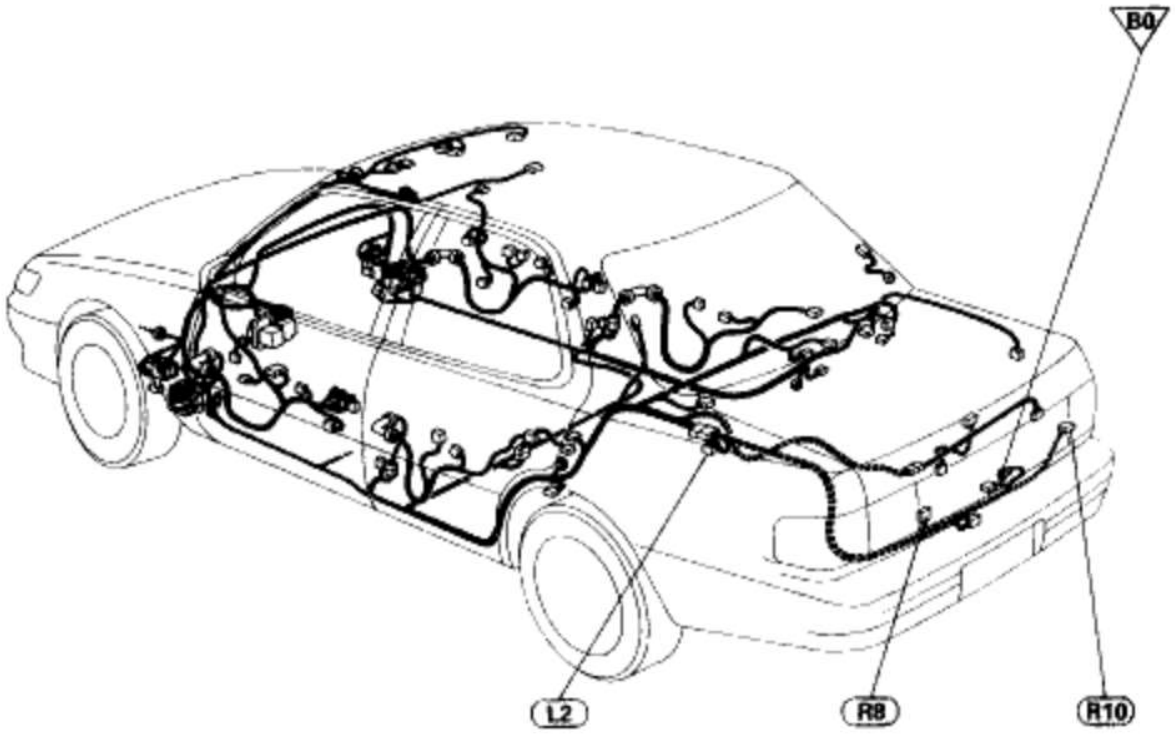



IR2
J/B No. 1
1E
1G
1B
1M
1C
1H
1A
1D

JI6 No.3



Location of Connectors in Body



N09710

L2

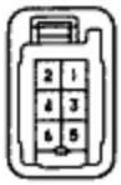
Light Failure Sensor



e-12-1

R8 R10

Stop Light LH, RH



e-6-2-E

CIRCUIT INSPECTION

DTC 11 13 Actuator Motor Circuit

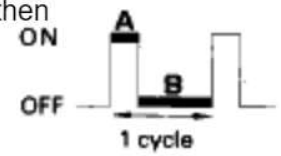
CIRCUIT DESCRIPTION

The actuator motor is operated by signals from the EC U. Acceleration and deceleration signals are transmitted by changes in the Duty Ratio (See note below).

Duty Ratio

The duty ratio is the ratio of the period of continuity in one cycle. For example, if A is the period of continuity in one cycle, and B is the period of non–continuity, then

Duty Ratio = AA B x 100 (°o)



BE4056

Code No.	Diagnosis	Trouble area
11	• Duty ratio of 100% output to motor acceleration side. • Overcurrent (short) in motor circuit.	• Cruise control actuator motor. • Harness or connector between actuator motor and ECU. • ECU
13	• Open in actuator motor circuit.	

DIAGNOSTIC CHART

1 Check actuator motor. — NG → Replace actuator assembly.

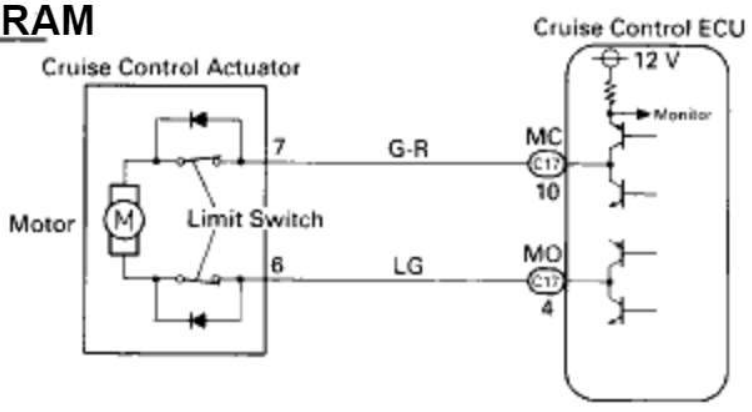
OK ↓

2 Check harness and connector between cruise control ECU and actuator motor. — NG → Repair or replace harness or connector.

OK ↓

Proceed to next circuit inspection shown on matrix chart (See page BE–178). However, when diag. trouble code 11, 13 is displayed, check and replace Cruise Control ECU.

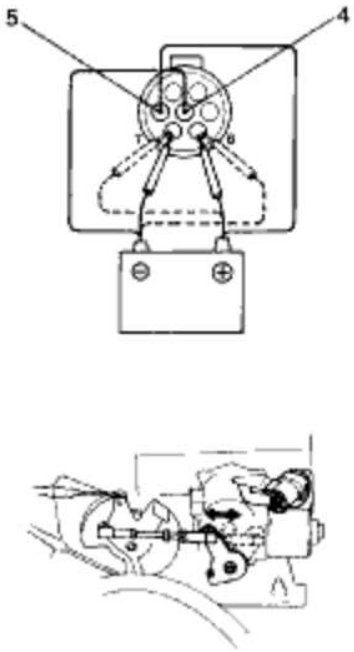
WIRING DIAGRAM



BE3946

INSPECTION PROCEDURE

1 **Check actuator motor.**



P
1. Remove cruise control actuator.
2. Disconnect actuator connector.

C
1. Connect positive + lead to terminal 5 and negative – lead to terminal 4 of actuator connector. (Magnet clutch ON)
2. When battery positive voltage is applied to each terminals of actuator connector, check that the control plate moves smoothly without hesitating.

Connect

Terminal / Moving direction	Positive ⊕	Negative ⊖	6	7
Acceleration side	○	○	○	○
Deceleration side	○	○	○	○

3. With the motor rotating as in 2, check that the motor is stopped by limit switches when the control plate moves to fully opened or fully closed position.

OK

NG → **Replace actuator assembly.**

2 **Check harness and connector between cruise control ECU and actuator motor. (See page IN–31)**

OK

NG → **Repair or replace harness or connector.**

Proceed to next circuit inspection shown on matrix chart (See page BE–178).
However, when diag. trouble code 11, 13 is displayed, check and replace Cruise Control ECU.

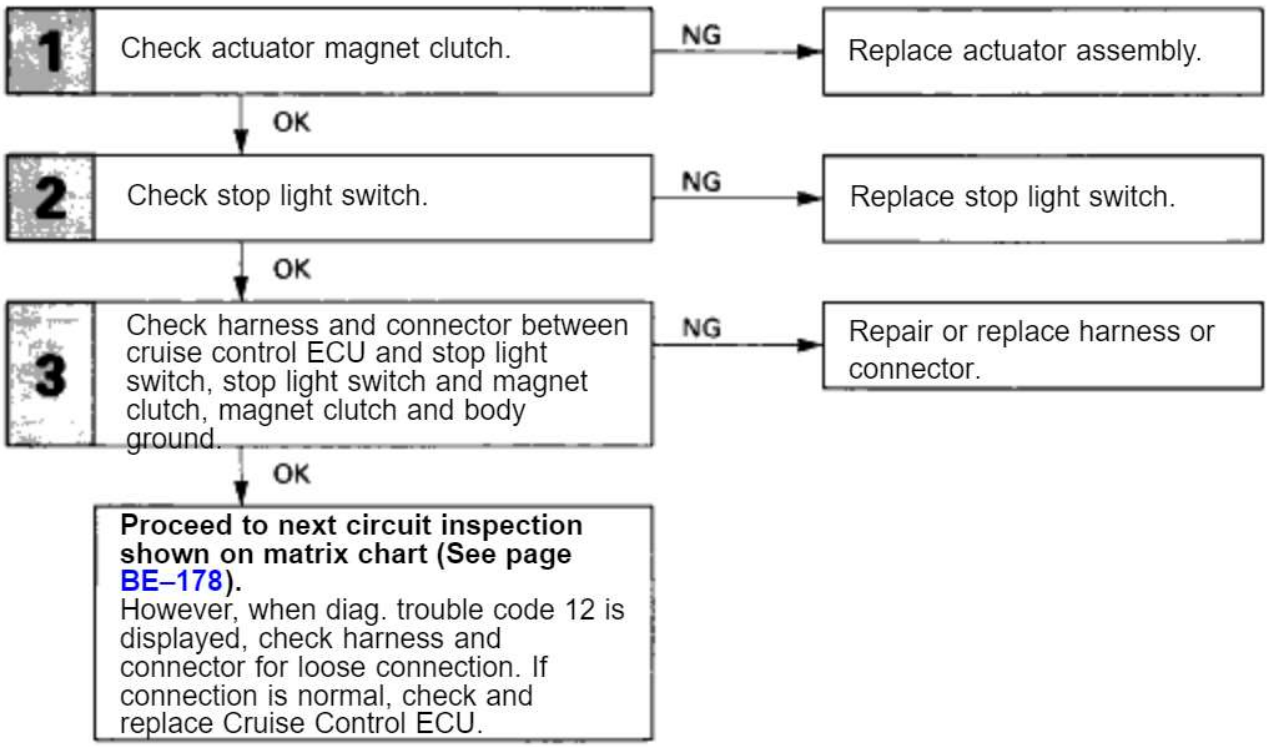
DTC 12 Actuator Magnet Clutch Circuit

CIRCUIT DESCRIPTION

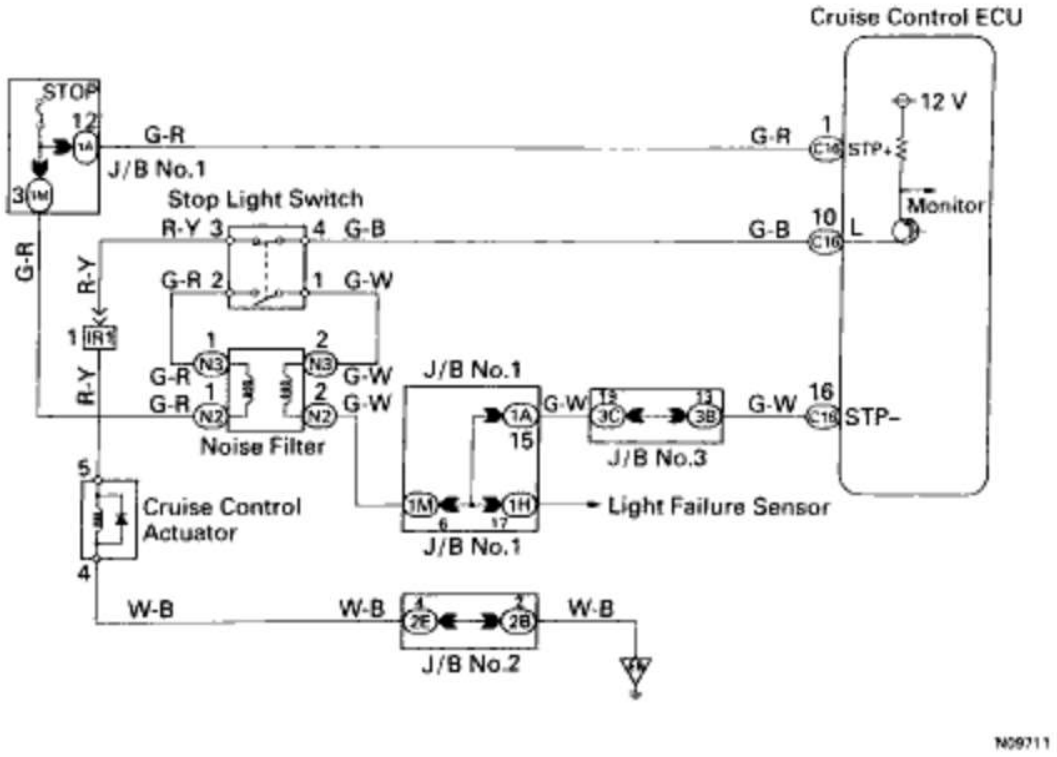
This circuit turns on the magnet clutch inside the actuator during cruise control operation according to the signal from the ECU. If a malfunction occurs in the actuator or speed sensor, etc. during cruise control, the rotor shaft between the motor and control plate is released.
When the brake pedal is depressed, the stoplight switch turns on, supplying electrical power to the stoplight. Power supply to the magnet clutch is mechanically cut and the magnet clutch is turned OFF.
When driving downhill, if the vehicle speed exceeds the set speed by 15 km/h (9 mph), the ECU turns the magnet clutch OFF. If the vehicle speed later drops to within 10 km/h (6 mph) above the set speed, then cruise control at the set speed is resumed.

Code No.	Diagnosis	Trouble area
12	• Overcurrent (short) in magnet clutch circuit. • Open in magnet clutch circuit.	• Cruise control magnet clutch. • Harness or connector between ECU and magnet clutch, magnet clutch and body ground. • ECU

DIAGNOSTIC CHART

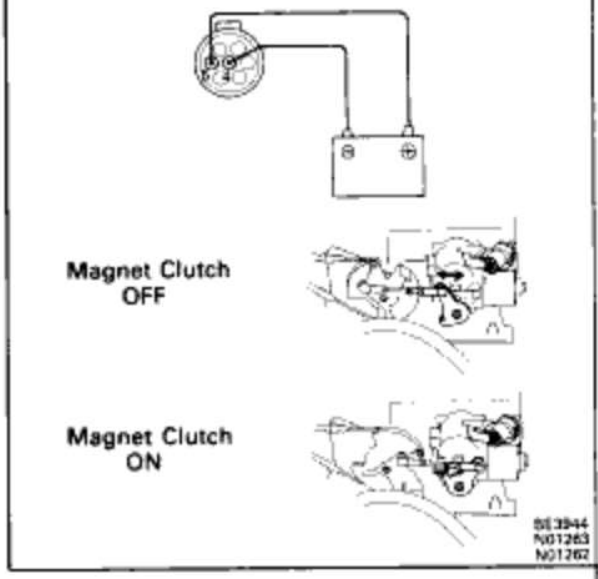


WIRING DIAGRAM



INSPECTION PROCEDURE

Check actuator magnet clutch.



P 1. Remove cruise control actuator.
2. Disconnect actuator connector.

C Move the control plate by hand.

OK **Control plate moves. (Magnet clutch off)**

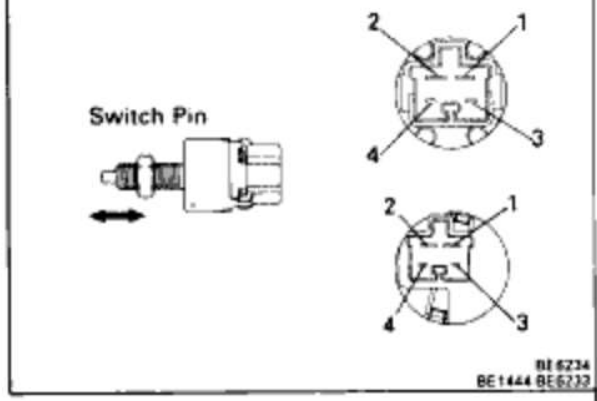
C 1. Connect positive + lead to terminal 5 and negative – lead to terminal 4 of actuator connector.
2. Move the control plate by hand.

OK **Control plate doesn't move. (Magnet clutch on)**

OK

NG **Replace actuator assembly.**

2 Check stop light switch.



P Disconnect stop light switch connector.

C Check continuity between terminals.

OK

Continuity

Terminal / Switch position	1	2	3	4
Switch pin free (Brake pedal depressed)	○—○			
Switch pin pushed in (Brake pedal released)			○—○	

OK

NG **Replace stop light switch.**

3 Check harness and connectors between cruise control ECU and stop light switch, stop light switch and magnet clutch, magnet clutch and body ground. (See page IN–31)

OK

NG **Repair or replace harness or connector.**

Proceed to next circuit inspection shown on matrix chart (See page BE–178). However, when diag trouble code 12 is displayed, check harness and connector for loose connection. If connection is normal, check and replace Cruise Control ECU.

– MEMO –

DTC 13 Actuator Position Sensor Circuit

CIRCUIT DESCRIPTION

This circuit detects the rotation position of the actuator control plate and sends signal to the ECU.

Code No.	Diagnosis	Trouble area
13	• Position sensor detects abnormal voltage. • Position sensor signal value does not change when the motor operates.	• Cruise control actuator Position sensor. • Harness or connector between actuator position sensor and body ground. • ECU

DIAGNOSTIC CHART

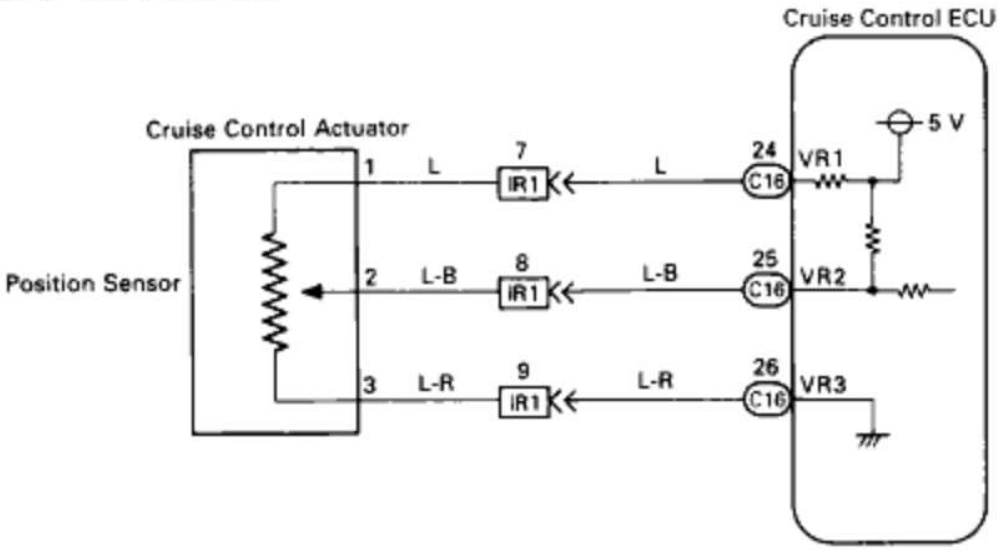
1 Check voltage between terminals VR2 and VR3 of cruise control ECU connector.
- OK → Proceed to next circuit inspection shown on matrix chart (See page BE–178).
- NG ↓

2 Check actuator position sensor.
- NG → Replace actuator assembly.
- OK ↓

3 Check harness and connector between cruise control ECU and actuator position sensor.
- NG → Replace or replace harness or connector.
- OK ↓

Check harness and connector for loose connection. If connection is normal, check and replace Cruise Control ECU.

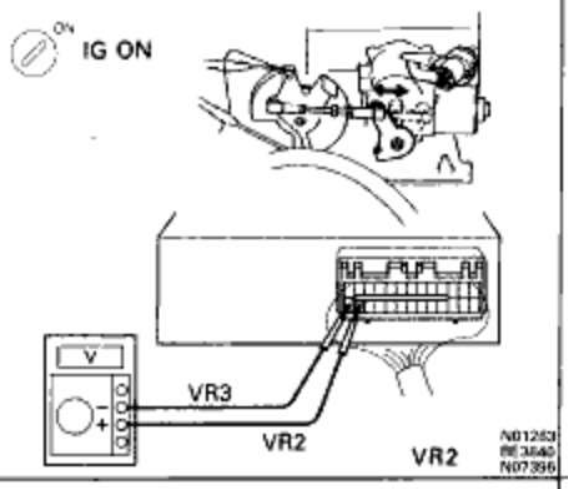
WIRING DIAGRAM



BE39

INSPECTION PROCEDURE

1 **Check voltage between terminals VR2 and VR3 of cruise control ECU connector.**



P Remove cruise control ECU with connectors still connected.

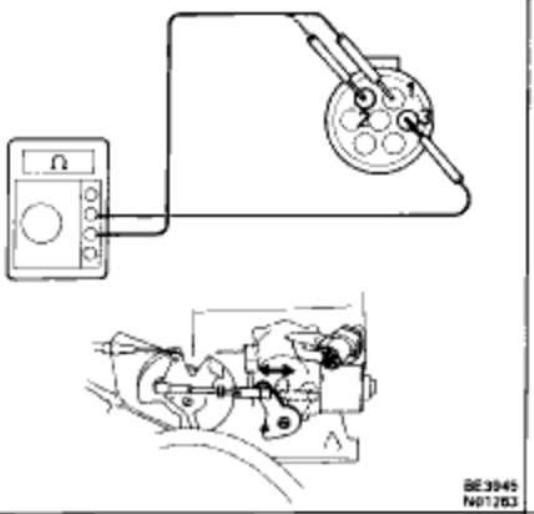
C 1 Turn ignition switch on.
2. Measure voltage between terminals VR2 and VR3 of cruise control ECU connector while turning control plate slowly by hand from the deceleration side to the acceleration side.

OK **Voltage:**
Fully closed: 1.1–1.4 V
Fully opened: 3.8–4.5 V
In addition, as the control plate is turned, the voltage should increase gradually without interruption.

NG

OK ⟩ **Proceed to next circuit inspection shown on matrix chart (See page BE–178).**

2 **Check actuator position sensor.**



P 1 Remove cruise control actuator.
2. Disconnect the actuator connector.

C Measure resistance between actuator terminals 1 and 3 of actuator connector.

OK **Resistance: 1.8–2.2 kΩ**

C Measure resistance between terminals 2 and 3 of actuator connector, while turning the control plate slowly by hand from the deceleration side to the acceleration side.

OK **Resistance:**
Fully closed: 500–550Ω
Fully opened: 1.5–2.0 kΩ
In addition, as the control plate turns, the resistance should increase gradually without interruption.

OK

NG ⟩ **Replace actuator assembly.**

3 **Check harness and connector between cruise control ECU and actuator position sensor. (See page IN–31)**

OK

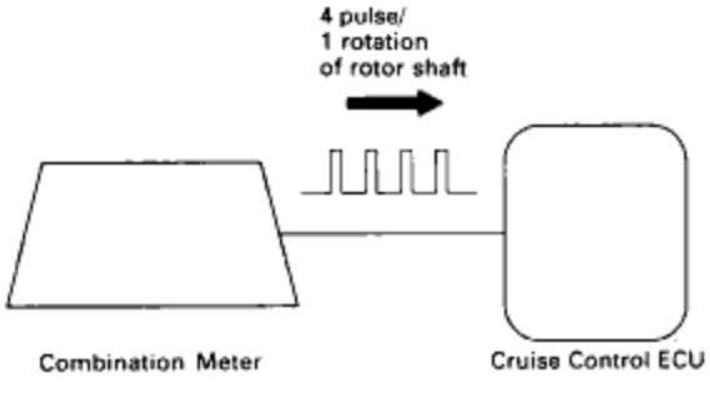
NG ⟩ **Repair or replace harness or connector.**

Check harness and connector for loose connection. If connection is normal check and replace cruise control ECU.

DTC 21 23 Speed Sensor Circuit

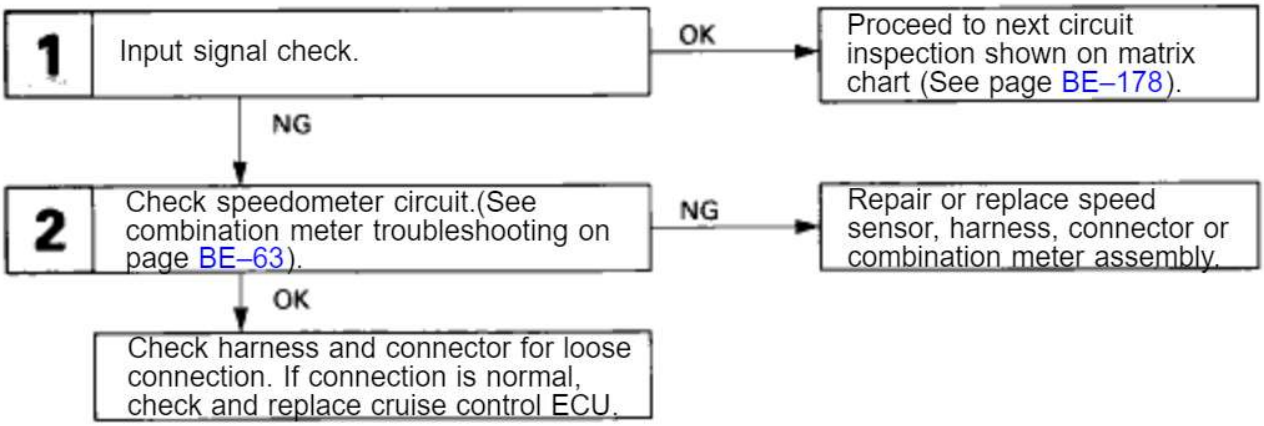
CIRCUIT DESCRIPTION

The speed sensor signal is sent to cruise control ECU as vehicle speed signal.

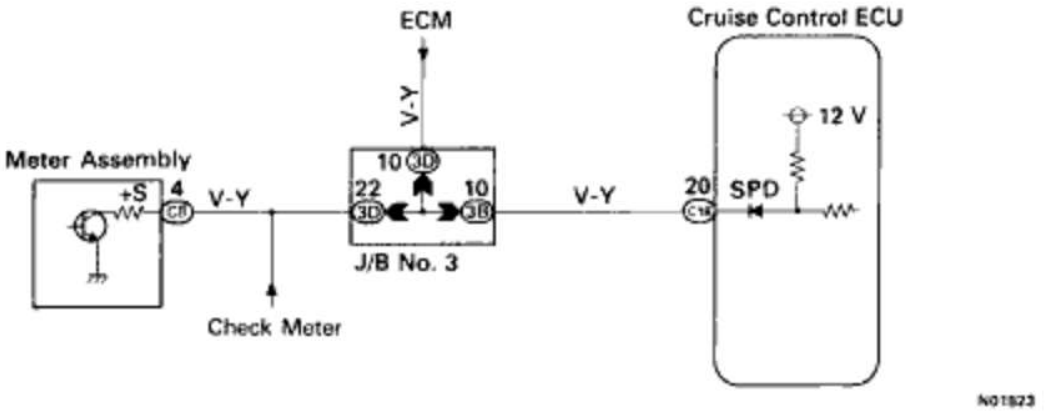


Code No.	Diagnosis	Trouble area
21	Speed signal is not input to the ECU	• Speed sensor • Combination meter • Harness or connector between speed sensor and combination meter, combination meter and ECU. • ECU
23	Actual vehicle speed has dropped by 16 km/h (10 mph) or more below the set speed during cruising. HINT: When speed sensor circuit is opened intermittently (Below 0.2 sec), code 23 is output.	• Actuator • Actuator control cable • Speed sensor • Harness or connector in OD and SPD circuit (Open or short intermittently) • ECU

DIAGNOSTIC CHART



WIRING DIAGRAM



INSPECTION PROCEDURE

1 **Input signal check.**

Vehicle speed	Indicator light blinking pattern
Above 40 km/h (25 mph)	Blinks: ON / OFF, 0.25 sec – 0.25 sec
Below 40 km/h (25 mph)	Stays ON: ON / OFF

BE4006

C 1 See input signal check on page BE–172.
2. Check indicator light operation when driving with vehicle speed above 40 km/h (25 mph), and with vehicle speed below 40 km/h (25 mph).

OK **Vehicle speed above 40 km/h (25 mph)**
: Indicator light blinks
Vehicle speed below 40 km/h (25 mph)
: Indicator light stays on

NG

OK → **Proceed to next circuit inspection shown on matrix chart (See page BE–178).**

2 **Check speedometer circuit. (See combination meter troubleshooting on page BE–63).**

OK

NG → **Repair or replace speed sensor, harness, connector or combination meter assembly.**

Check harness and connector for loose connection. If connection is normal, check and replace cruise control ECU.

– MEMO –

DTC 32 34 Control Switch Circuit (Cruise Control Switch)

CIRCUIT DESCRIPTION

This circuit carries the SET/COAST, RESUME/ACCEL and CANCEL signals (each voltage) to the ECU.

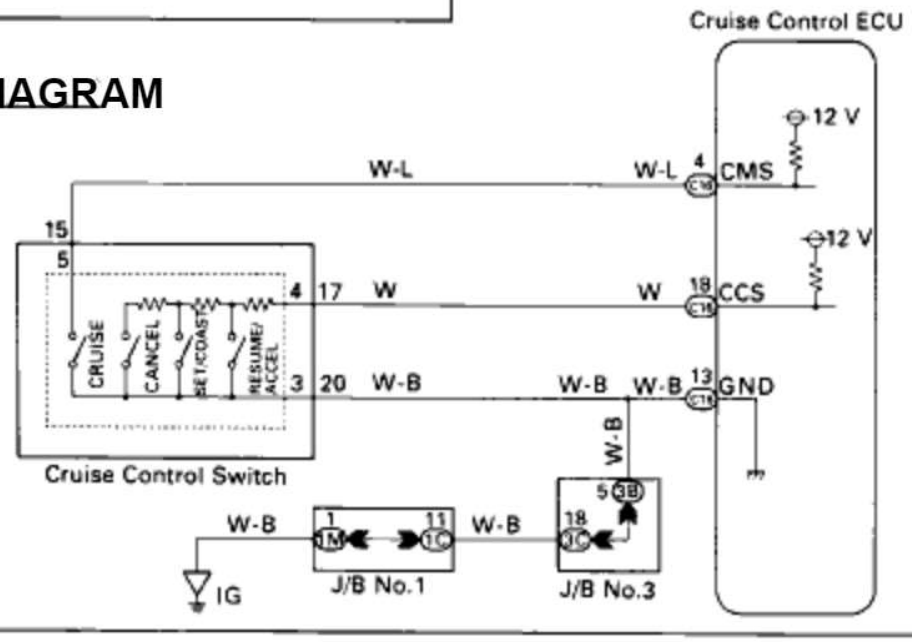
Code No.	Diagnosis	Trouble area
32	Short in, control switch circuit.	• Cruise control switch. • Harness or connector between control switch and ECU. • ECU
34	Voltage abnormality in control switch circuit.	

DIAGNOSTIC CHART

1. Input signal check.
   - OK → Proceed to next circuit inspection shown on matrix chart (See page BE–178).
   - NG ↓
2. Check voltage between terminal CCS of cruise control ECU connector and body ground.
   - OK → Proceed to next circuit inspection shown on matrix chart (See page BE–178).
   - NG ↓
3. Check control switch.
   - NG → Replace cruise control switch.
   - OK ↓
4. Check harness and connector between cruise control ECU and control switch.
   - NG → Repair or replace harness or connector.
   - OK ↓

Check and replace cruise control ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 **Input signal check.**

Input signal	Indicator light blinking pattern
SET/COAST SWITCH	ON 2 Pulse OFF
RESUME ACCEL SWITCH	ON 3 Pulse OFF
CANCEL SWITCH	switch OFF ON OFF switch ON

BE4006

C 1 See input signal check on page BE–172.

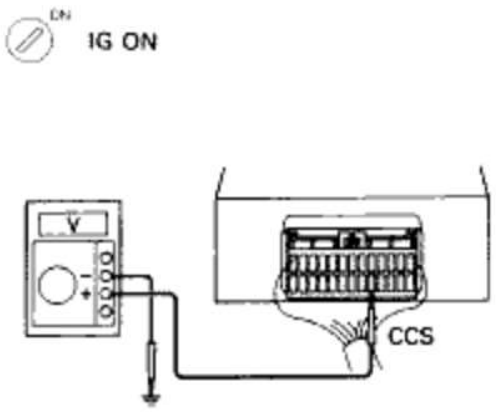
2. Check the indicator light operation when each of the SET/COAST, RESUME/ACCEL and CANCEL is turned ON.

OK **SET/COAST, RESUME/ACCEL switch**
The signals shown in the table on the left should be output when each switch is ON. The signal should disappear when the switch is turned OFF. CANCEL switch
The indicator light goes off when the cancel switch is turned ON.

NG

OK **Proceed to next circuit inspection shown on matrix chart (See page BE–178).**

2 **Check voltage between terminal CCS of cruise control ECU connector and body ground.**



BE6618

P Remove cruise control ECU with connectors still connected.

C 1 Turn ignition switch ON.
2. Measure voltage between terminal CCS of cruise control ECU connector and body ground, when each of the SET/COAST, RESUME/ACCEL and CANCEL is turned ON.

OK

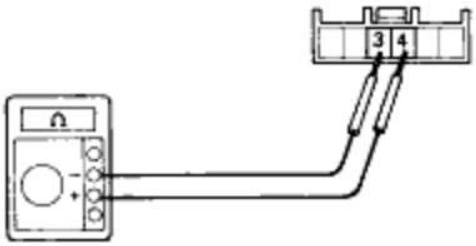
Switch position	Voltage
Neutral	10–14 V
RES/ACC	0.7–2.5 V
SET/COAST	2.3–4.6 V
CANCEL	4.1–7.2 V

NG

OK **Proceed to next circuit inspection shown on matrix chart (See page BE–178).**

Go to step 3

3 **Check control switch.**



BE3960

P 1 Remove steering wheel center pad.
2. Disconnect control switch connector.

C Measure resistance between terminals 3 and 4 of control switch connector when control switch is operated.

OK

Switch position	Resistance
Neutral	1 Mn or higher
RES/ACC	60–80Ω
SET/COAST	190–2100
CANCEL	410–4300

Hint When diagnostic trouble code 34 is displayed, carefully check that resistance is always 1 Mil or higher in neutral position, particularly when switching between REC/ACC and SET/COAST.

OK

NG **Replace cruise control switch.**

4 **Check harness and connector between cruise control ECU and control switch. (See page IN–31)**

OK

NG **Repair or replace harness or connector.**

Check and replace cruise control ECU.

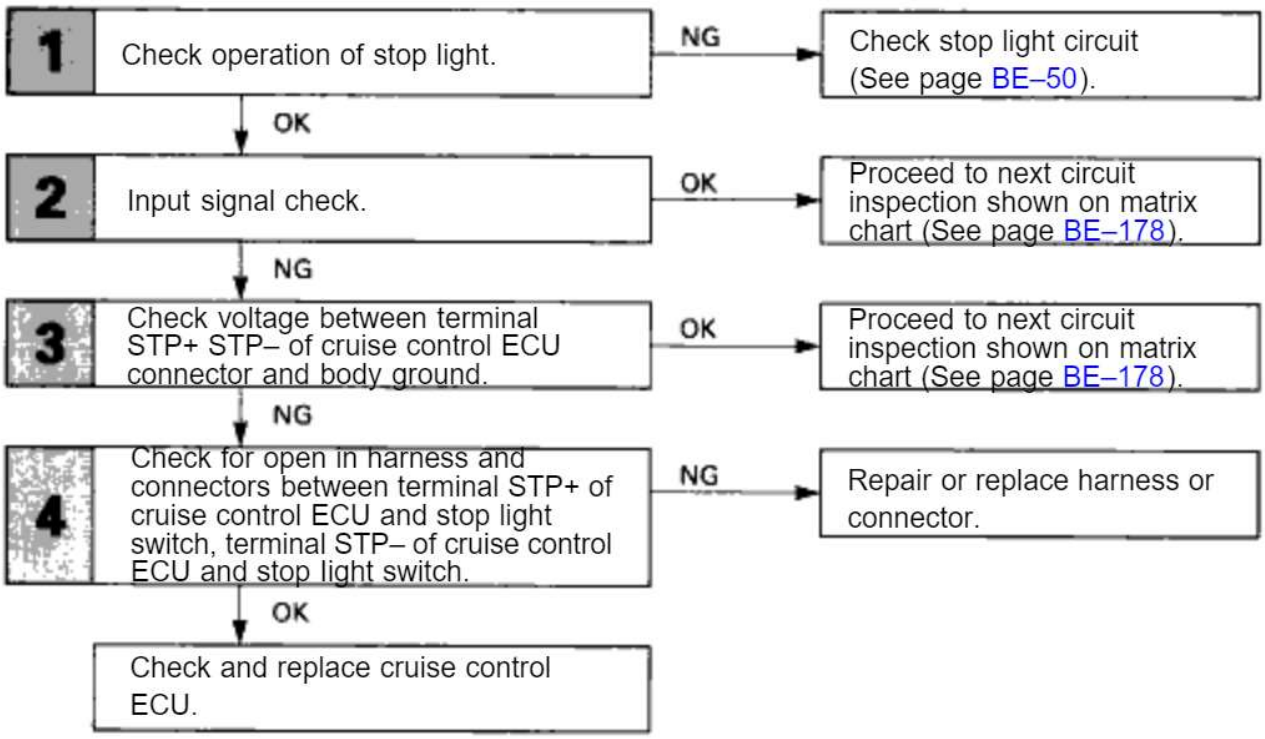
– MEMO –

Stop Light Switch Circuit

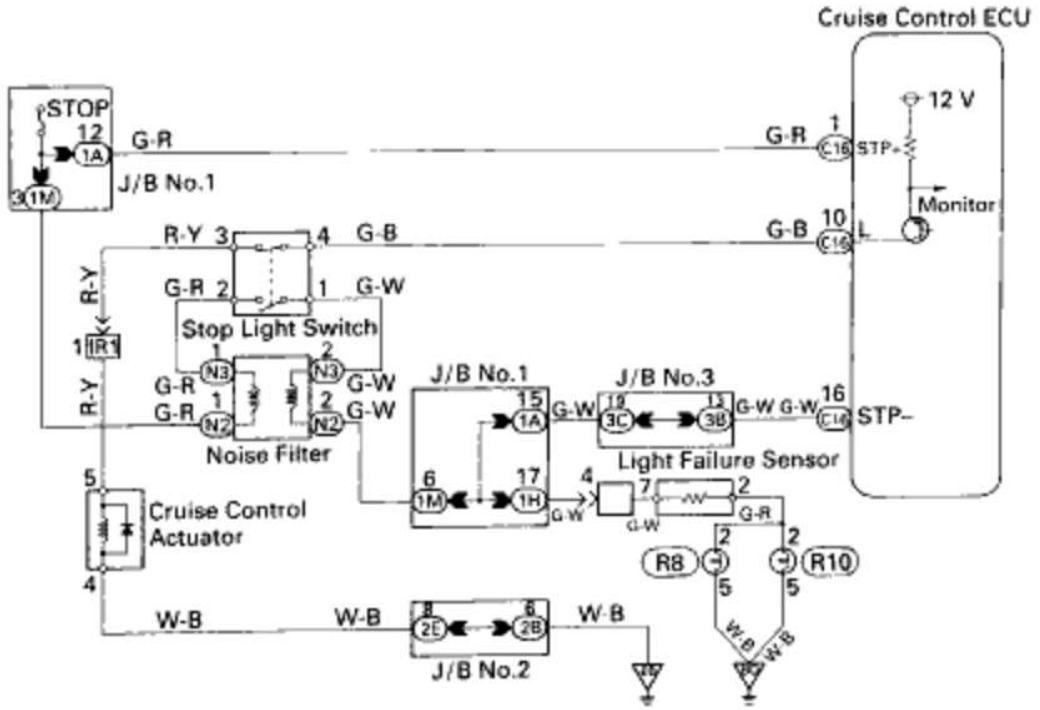
CIRCUIT DESCRIPTION

When the brake is on, battery voltage normally applies through the stop fuse and stop switch to terminal STP– of the ECU, and the ECU turns the cruise control off.
A fail–safe function is provided so that the cancel functions normally, even if there is a malfunction in the stop light signal circuit.
1 If the harness connected to terminal STP– has an open, terminal STP– will have battery positive voltage and the cruise control will be turned off, also SET not occurring.
2 If the stop fuse is open, terminal STP+ becomes approx. 0 V when the brake is turned on, so the ECU performs cancel function normally.
Also, shown the brake is on, the magnet clutch circuit is cut mechanically by the stop light switch, turning the cruise control off. (See page BE–190 for operation of the magnet clutch.)

DIAGNOSTIC CHART



WIRING DIAGRAM



N09712

INSPECTION PROCEDURE

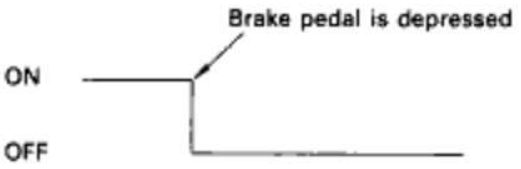
1 **Check operation of stop light.**

C Check that stop light comes on when brake pedal is depressed, and turns off when brake pedal is released.

OK

NG > **Check stop light circuit (See page BE–50).**

2 **Input signal check.**



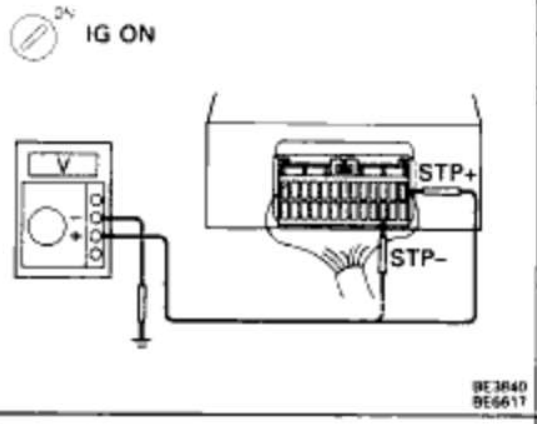
C 1. See input signal check on page BE–172.
2. Check the indicator light when the brake pedal is depressed.

OK The indicator light goes off when the brake pedal is depressed.

NG

OK > **Proceed to next circuit inspection shown on matrix chart (See page BE–178).**

3 **Check voltage between terminal STP+, STP– of cruise control ECU connector and body ground.**



P Remove cruise control ECU with connectors still connected.

C 1. Turn ignition switch ON.
2. Measure voltage between terminal STP+, STP– of cruise control ECU connector and body ground, when the brake pedal is depressed and released.

OK

	STP+	STP–
Depressed	10– 14V	10– 14V
Released	10–14V	Below 1 V

NG

OK > **Proceed to next circuit inspection shown on matrix chart (See page BE–178).**

4 **Check for open in harness and connectors between terminal STP+ of cruise control ECU and stop light switch, terminal STP– of cruise control ECU and stop light switch. (See page IN–31)**

OK

NG > **Repair or replace harness or connector.**

Check and replace cruise control ECU.

– MEMO –

Idle Switch Circuit

CIRCUIT DESCRIPTION

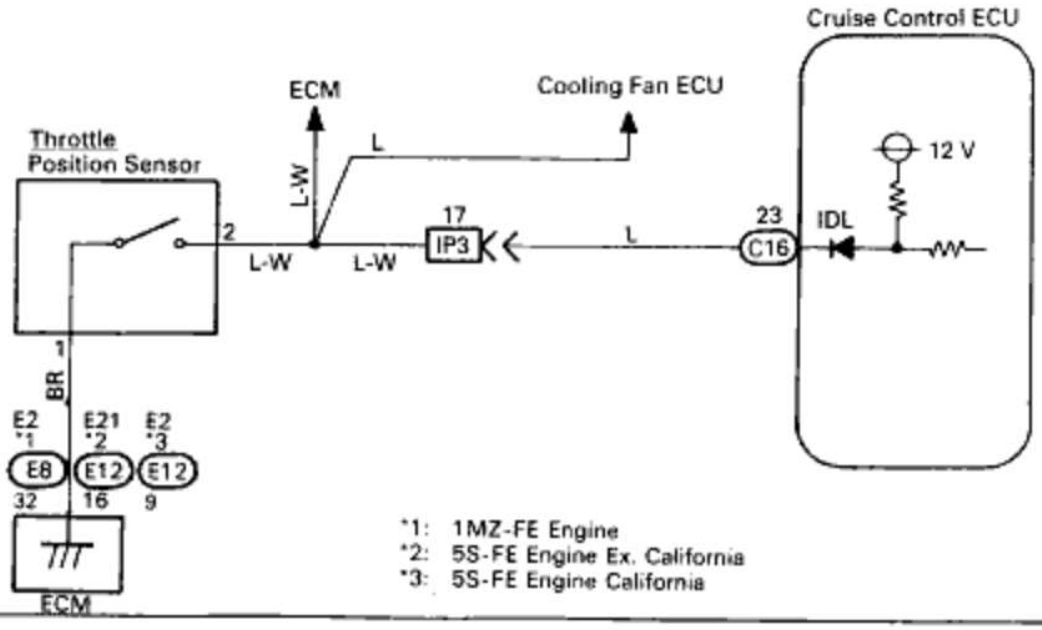
When the idle switch is turned ON, a signal is sent to the ECU. The ECU uses this signal to enable accurate cruise control at the set speed quickly. If the idle switch is malfunctioning, problem symptoms also occur in the engine, so also inspect the engine.

DIAGNOSTIC CHART

1. Check voltage between terminal IDL of cruise control ECU connector and body ground.
   - OK → Proceed to next circuit inspection shown on matrix chart (See page BE–178).
   - NG ↓
2. Check throttle position sensor.
   - NG → Replace throttle position sensor.
   - OK ↓
3. Check harness and connector between cruise control ECU and throttle position sensor, throttle position sensor and body ground.
   - NG → Repair or replace harness or connector.
   - OK ↓

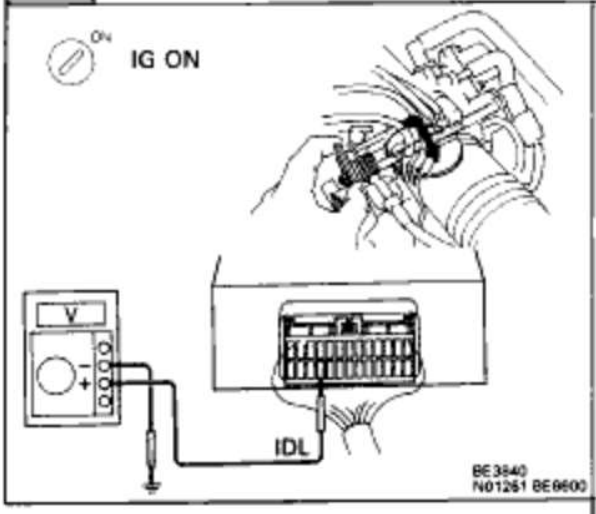
Check and replace cruise control ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 **Check voltage between terminal IDL of cruise control ECU connector and body ground.**



P 1. Remove cruise control ECU with connectors still connected.
2. Disconnect ECM and ABS & TRAC ECU connector.

C 1. Turn ignition switch ON.
2. Measure voltage between terminal IDL of cruise control ECU connector and body ground, when the throttle valve is fully closed and fully opened.

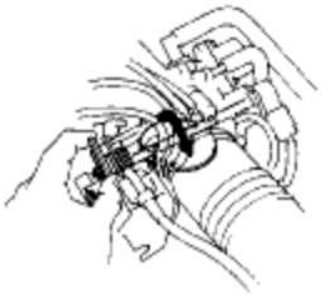
OK

Throttle valve position	Voltage
Fully opened	10– 14V
Fully closed	Below 1 V

NG

OK → **Proceed to next circuit inspection shown on matrix chart (See page BE–178).**

2 **Check throttle position sensor.**



P Disconnect throttle position sensor connector.

C Measure resistance between terminals 1 and 2 of throttle position sensor connector, when the throttle valve is fully closed and fully opened.

OK

Throttle valve position	Resistance
Fully opened	1 Mil or higher
Fully closed	Below 2Ω

OK

NG → **Replace throttle position sensor.**

3 **Check harness and connector between cruise control ECU and throttle position sensor, throttle position sensor and body ground. (See page IN–31)**

OK

NG → **Repair or replace harness or connector.**

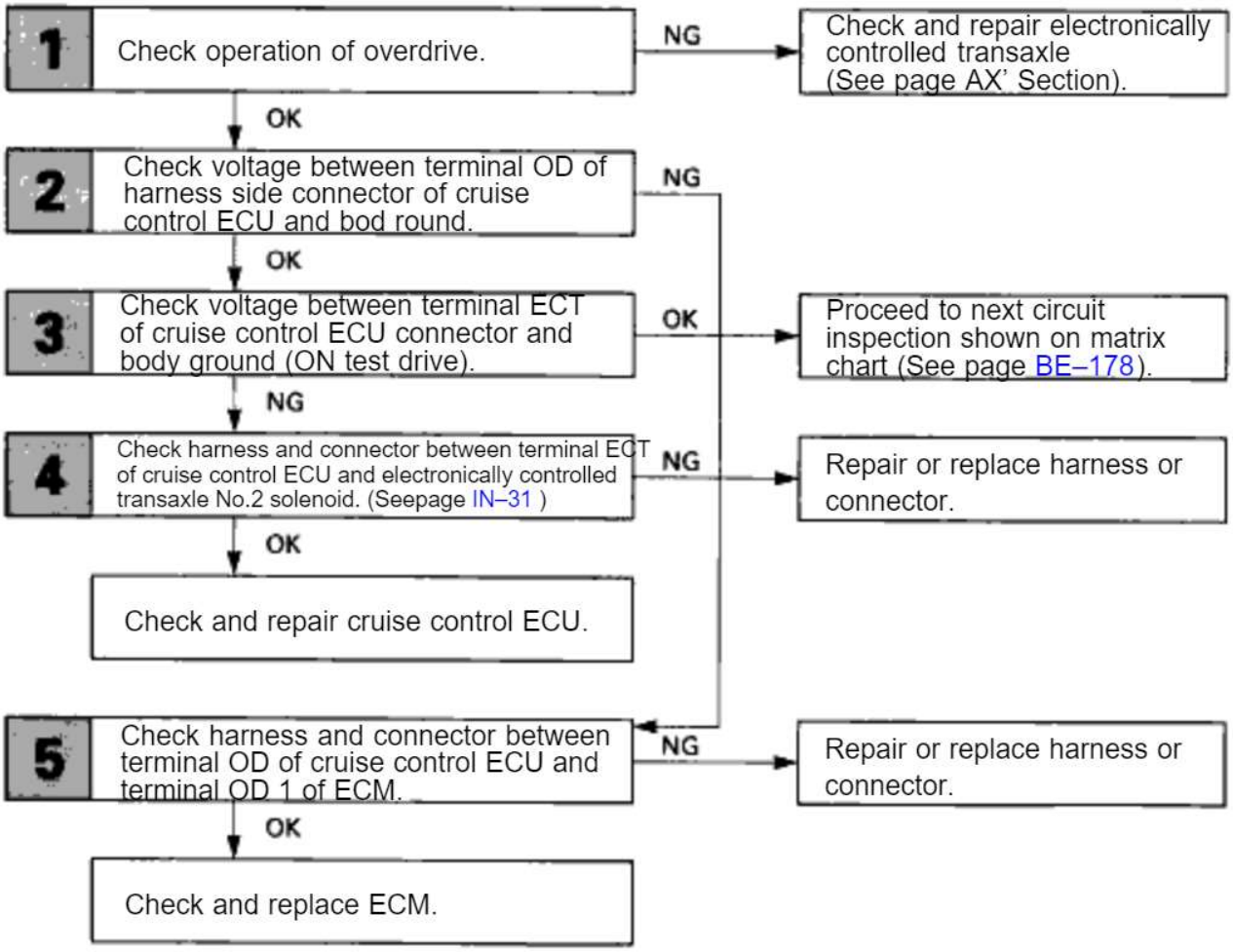
Check and replace cruise control ECU.

Electronically Controlled Transaxle Communication Circuit

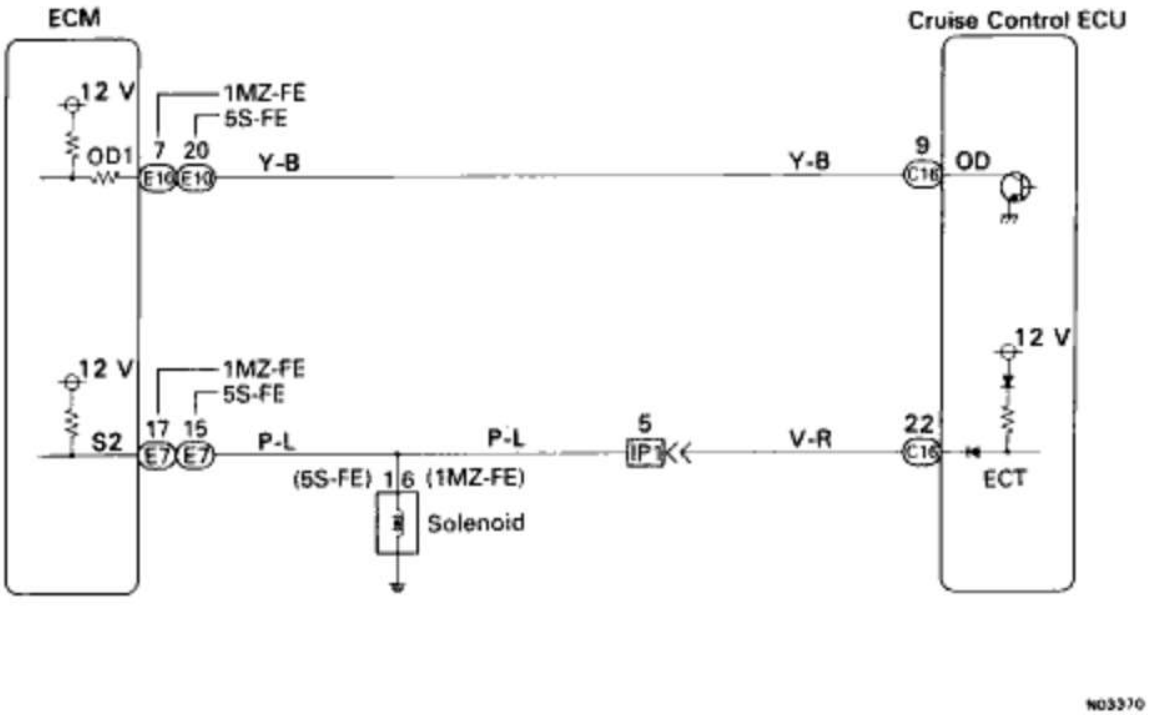
CIRCUIT DESCRIPTION

When driving uphill under cruise control, in order to reduce shifting due to ON–OFF overdrive opera–tion and to provide smooth driving, when down shifting in the electronically controlled transaxle oc–curs, a signal to prevent upshift until the end of the uphill slope is sent from the cruise control ECU to the ECM.
Terminal ECT of the cruise control ECU detects the shift change signal (out–put to electronically con–trolled transaxle No.2 solenoid) from the ECM.
If vehicle speed down and terminal ECT of the control ECU receivers down shifting signal, it sends a signal from terminal OD to ECM to cut overdrive until the end of the uphill slope, and the gearshifts are reduced.

DIAGNOSTIC CHART



WIRING DIAGRAM



INSPECTION PROCEDURE

1 **Check operation of overdrive.**

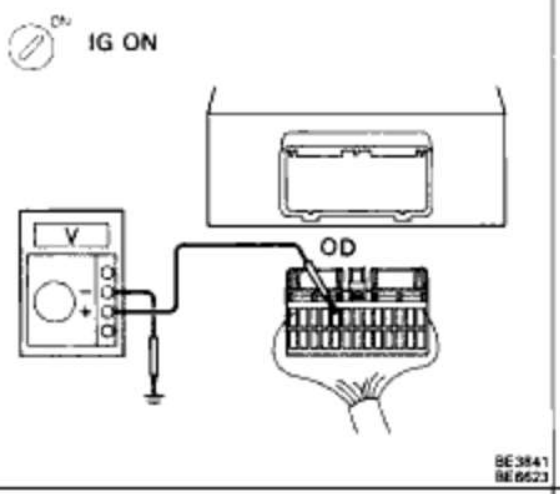
P Test drive after engine warm up.

C Check that overdrive ON H OFF occurs with operation of OD switch ON–OFF.

OK

NG > **Check and Repair Electronically Controlled Transaxle (See page AX Section).**

2 **Check voltage between terminal OD of harness side connector of cruise control ECU and body ground.**



P Remove cruise control ECU with connectors still connected.

C
1. Disconnect cruise control ECU connector.
2. Turn ignition switch ON.
3. Measure voltage between terminal OD of harness side connector of cruise control ECU and body ground.

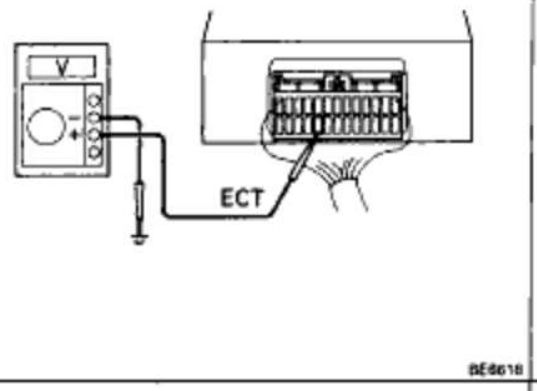
OK **Voltage: 10 – 14 V**

OK

NG > **Go to step** ■

Go to step ■

3 Check voltage between terminal ECT of cruise control ECU connector and body ground (On test drive).



P 1. Connect cruise control electronically controlled transaxle connector.
2. Test drive after engine warm up.

C Check voltage between terminal ECT of cruise control ECU connector and body ground when OD switch is on and off.

OK

Gear Position	Voltage
O/D	Below 1 V
3rd	10 – 14 V

NG

OK → Proceed to next circuit inspection shown on matrix chart (See page BE–178).

4 Check harness and connector between terminal ECT of cruise control ECU and solenoid. (See page IN–31)

OK

NG → Repair or replace harness or connector.

Check and repair cruise control ECU.

5 Check harness and connector between terminal OD of cruise control ECU and terminal OD1 of ECM. (See page IN–31)

OK

NG → Repair or replace harness or connector.

Check and replace ECU.

Parking Brake Switch Circuit

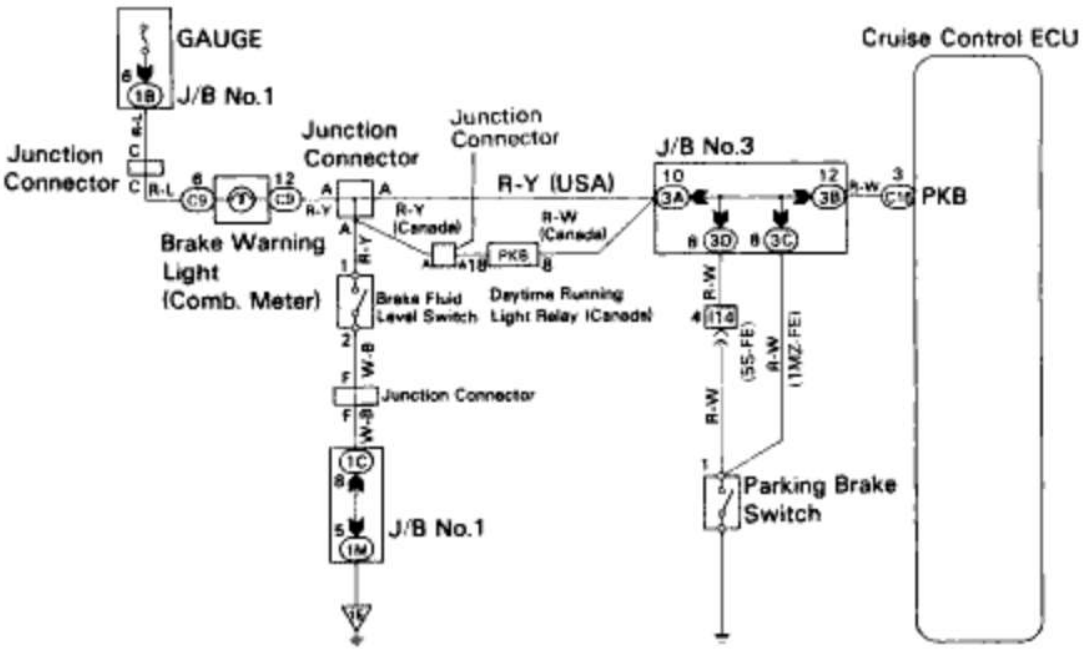
CIRCUIT DESCRIPTION

When the parking brake is operating , the parking brake switch sends a signal to the ECU. When this signal is input to the ECU during cruise control driving, the ECU cancels cruise control.

DIAGNOSTIC CHART

1	Check operation of brake warning light.	NG	Check brake warning light circuit (See page BE–61).
	OK		
2	Input signal check.	OK	Proceed to next circuit inspection shown on matrix chart (See page BE–178).
	NG		
3	Check voltage between terminal PKB of cruise control ECU connector and body ground.	OK	Proceed to next circuit inspection shown on matrix chart (See page BE–178).
	NG		
4	Check for open in harness and connector between cruise control ECU and brake warning light.	NG	Repair or replace harness or connector.
	OK		
	Check and replace cruise control ECU.		

WIRING DIAGRAM



INSPECTION PROCEDURE

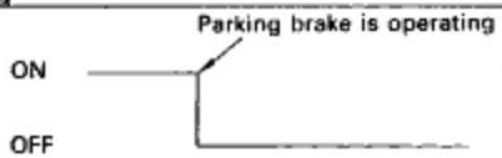
1 **Check operation of brake warning light.**

C Check that the brake warning light in the instrument panel comes on when the parking brake is operating with the engine running, and the light goes off when the parking brake is not operating.

OK

NG > **Check brake warning light circuit (See page BE–64).**

2 **Input signal check.**



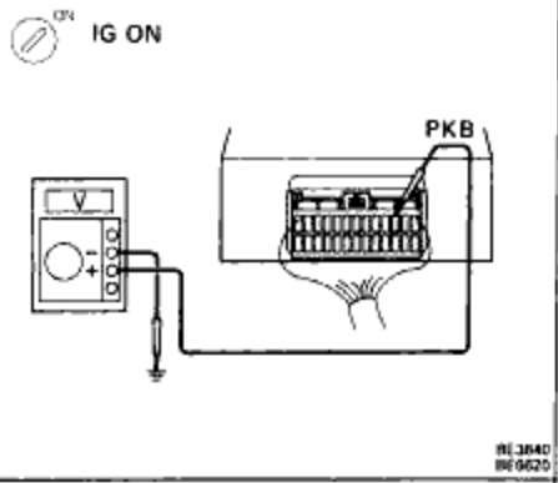
C 1. See input signal check on page BE–172.
2. Check the indicator light when the parking brake is operating.

OK The indicator light goes off when the parking brake is operating.

NG

OK > **Proceed to next circuit inspection shown on matrix chart (See page BE–178).**

3 **Check voltage between terminal PKB of cruise control ECU connector and body ground.**



P Remove cruise control ECU with connectors still connected.

C 1. Turn ignition switch ON.
2. Measure voltage between terminal PKB of cruise control ECU connector and body ground, when the parking brake lever is operating.

OK

Switch Position	Voltage
ON (lever pulled)	Below 1 V
OFF (lever released)	10 – 14 V

NG

OK > **Proceed to next circuit inspection shown on matrix chart (See page BE–178).**

4 **Check for open in harness and connector between cruise control ECU and brake warning light. (See page IN–31)**

OK

NG > **Repair or replace harness or connector.**

Check and replace cruise control ECU.

Park Neutral Position Switch Circuit

CIRCUIT DESCRIPTION

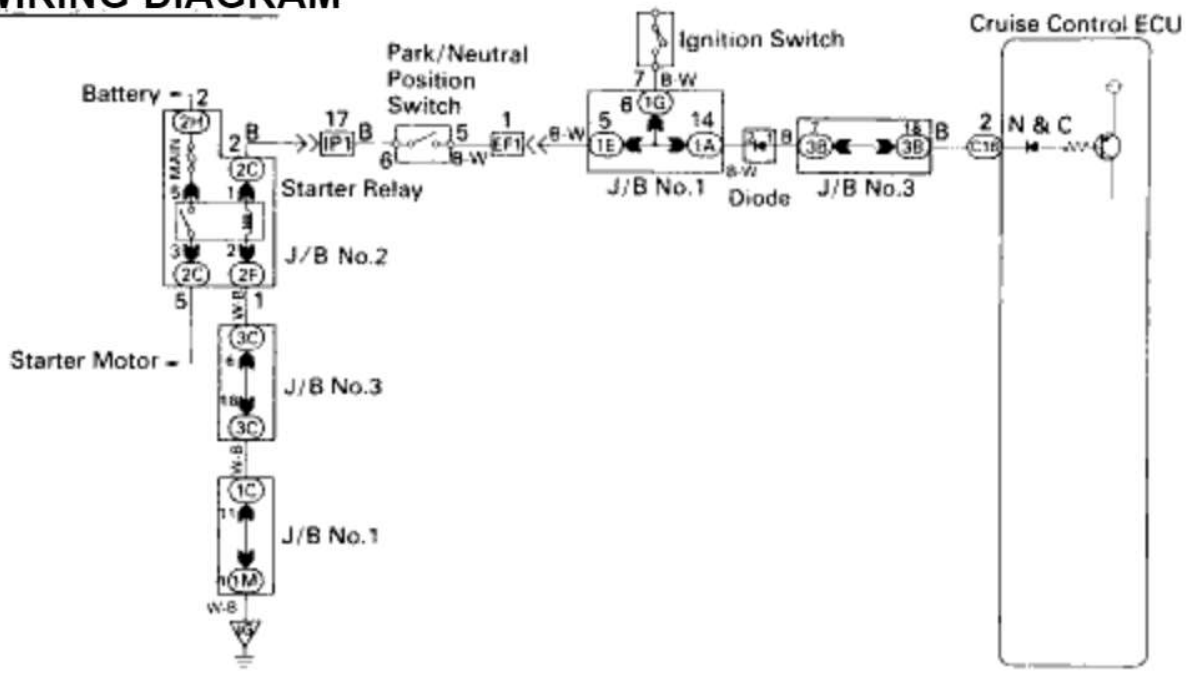
When the shift position is put in P or N, a signal is sent from the park/neutral position switch to the ECU. When this signal is input during cruise control driving, the ECU cancels the cruise control.

DIAGNOSTIC CHART

1. Check operation of starter.
   - NG → Proceed to engine trouble–shooting.(See page EG Section)
   - OK ↓
2. Input signal check.
   - OK → Proceed to next circuit inspection shown on matrix chart (See page BE–178).
   - NG ↓
3. Check voltage between terminal N & C of cruise control ECU connector and body round.
   - OK → Proceed to next circuit inspection shown on matrix chart (See page BE–178).
   - NG ↓
4. Check for open in harness and connector between cruise control ECU and ST fuse. (See page IN–31)
   - NG → Repair or replace harness or connector.
   - OK ↓

Check and replace cruise control ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

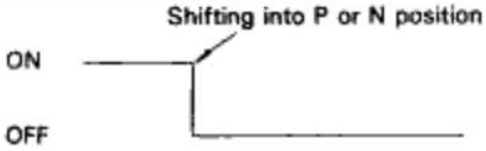
1 **Check operation of starter.**

C Check that the starter operates normally and that the engine starts.

OK

NG → **Proceed to engine troubleshooting (See page EG Section).**

2 **Input signal check.**



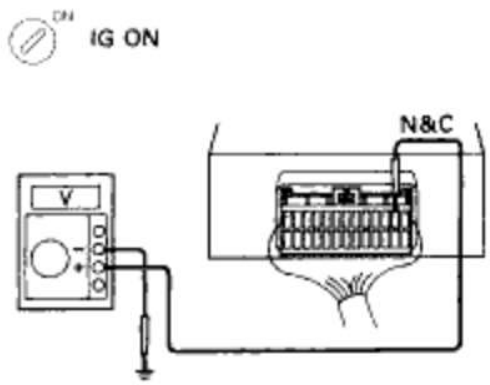
C 1. See input signal check on page BE–172.
2. Check the indicator light when shifting into P position or N position.

OK **The indicator light goes off when shifting into P position or N position.**

NG

OK → **Proceed to next circuit inspection shown on matrix chart (See page BE–178).**

3 **Check voltage between terminal N & C of cruise control ECU connector and body ground.**



P Remove cruise control ECU with connectors still connected.

C 1. Turn ignition switch ON.
2. Measure voltage between terminal N & C of cruise control ECU connector and body ground, when shifting into P, N position and other positions.

OK

Switch Position	Voltage
P or N position	Below 1 V
Other positions	10– 14V

NG

OK → **Proceed to next circuit inspection shown on matrix chart (See page BE–178).**

4 **Check for open in harness and connector between cruise control ECU and ST fuse. (See page IN–31)**

OK

NG → **Repair or replace harness or connector.**

Check and replace cruise control ECU.

Clutch Switch Circuit (5S–FE MT Vehicles)

CIRCUIT DESCRIPTION

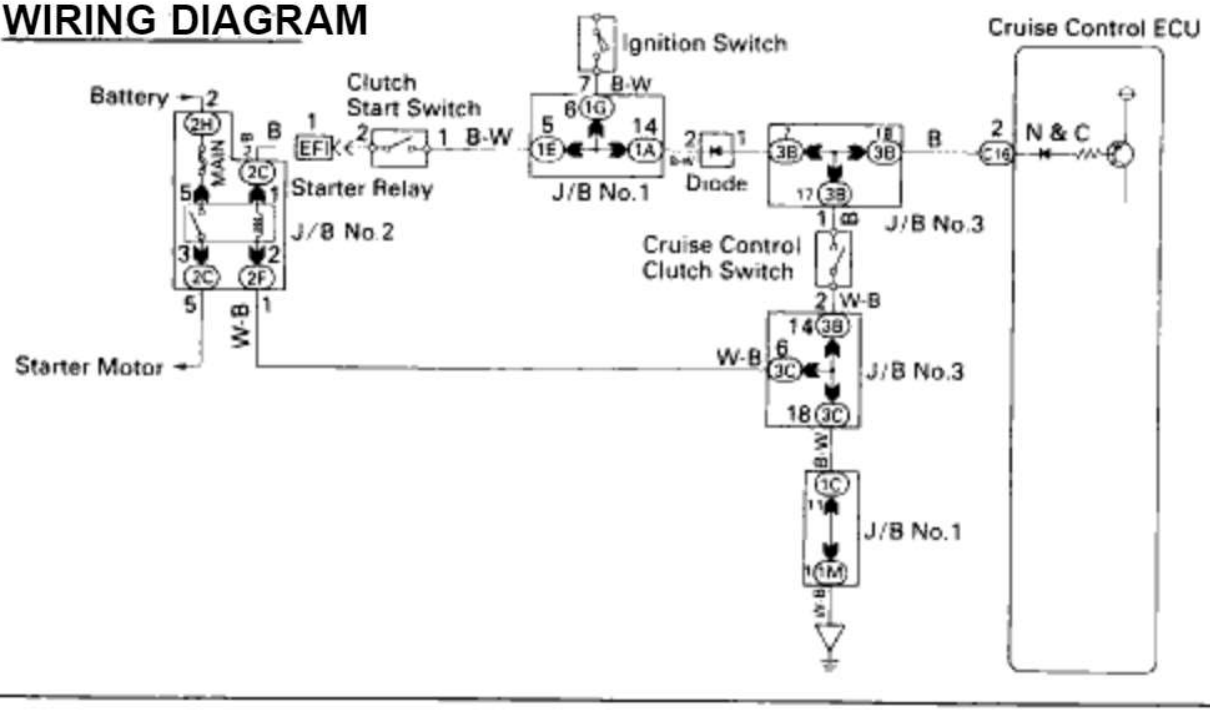
When the clutch pedal is depressed, the clutch switch sends a signal to the ECU, when this signal is input to the ECU during cruise control driving, the ECU cancels cruise control.

DIAGNOSTIC CHART

1. Check operation of starter.
   - NG → Proceed to engine trouble–shooting.(See page EGI Section)
   - OK ↓
2. Input signal check.
   - OK → Proceed to next circuit inspection shown on matrix chart (See page BE–178).
   - NG ↓
3. Check voltage between terminal N & C of cruise control ECU connector ECU connector and body ground.
   - OK → Proceed to next circuit inspection shown on matrix chart (See page BE–178).
   - NG ↓
4. Check for open in harness and connector between terminal N & C of cruise control ECU and clutch switch. (See page IN–31)
   - NG → Repair or replace harness or connector.
   - OK ↓

Check and replace cruise control ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

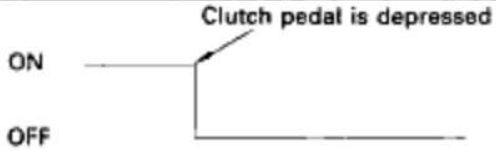
1 **Check operation of starter.**

C Check that the starter operates normally and that the engine starts.

OK

NG → **Proceed to engine troubleshooting (See page EG Section).**

2 **Input signal check.**



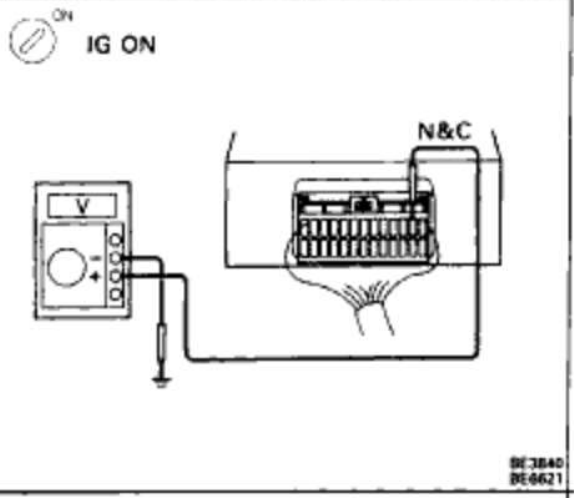
C 1. See input signal check on page BE–172.
2. Check the indicator light when shifting into P range or N position.

OK **The indicator light goes off when the clutch pedal is depressed.**

NG

OK → **Proceed to next circuit inspection shown on matrix chart (See page BE–178).**

3 **Check voltage between terminal N & C of cruise control ECU connector and body ground.**



P Remove cruise control ECU with connectors still connected.

C 1. Turn ignition switch ON.

2. Measure voltage between terminal N & C of cruise control ECU connector and body ground, when the clutch pedal is depressed.

OK

Switch Position	Voltage
ON (pedal depressed)	Below 1 V
OFF	10 – 14 V

NG

OK → **Proceed to next circuit inspection shown on matrix chart (See page BE–178).**

4 **Check for open in harness and connector between cruise control ECU and ST fuse.**

OK

NG → **Repair or replace harness or connector.**

Check and replace cruise control ECU.

ECU Power Source Circuit

CIRCUIT DESCRIPTION

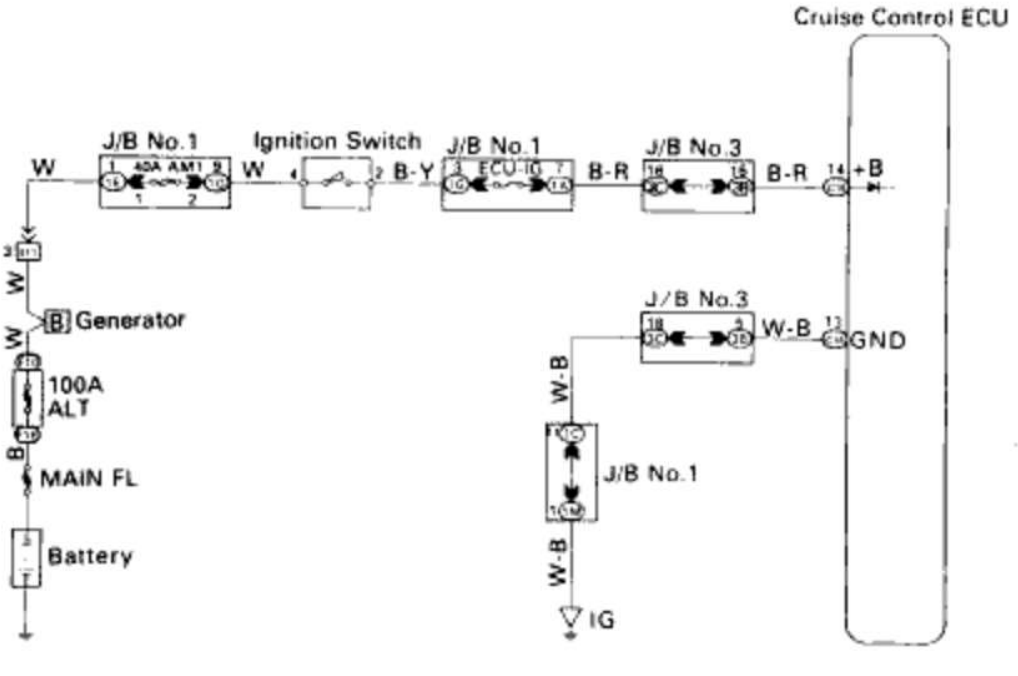
The ECU power source supplies power to the actuator. Terminal GND and the cruise control ECU case are grounded.

DIAGNOSTIC CHART

1. Check ECU–IG fuse.
   - NG → Check for short in all the harness and components connected to the ECU–IG fuse (See attached wire diagram).
   - OK ↓
2. Check voltage between terminals B and GND of cruise control ECU connector.
   - OK → Proceed to next circuit inspection shown on matrix chart (See page BE–178).
   - NG ↓
3. Check continuity between terminal GND of cruise control ECU connector and body ground.
   - NG → Repair or replace harness or connector.
   - OK ↓

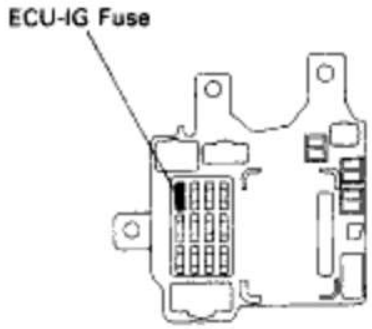
Check and repair harness and connector between battery and cruise control ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 **Check ECU–IG fuse.**



P Remove ECU–IG fuse from J/B No. 1.

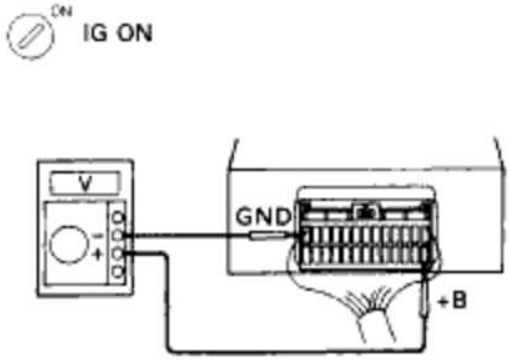
C Check continuity of ECU–IG fuse.

OK **Continuity**

OK

NG → **Check for short in all the harness and components connected to the ECU–IG fuse (See attached wiring diagram).**

2 **Check voltage between terminals +B and GND of cruise control ECU connector.**



P Remove cruise control ECU with connectors still connected.

C 1. Turn ignition switch ON.
2. Measure voltage between terminals +B and GND of cruise control ECU connector.

OK **Voltage: 10 – 14 V**

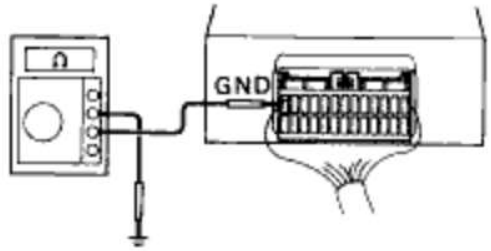
NG

OK → **Proceed to next circuit inspection shown on matrix chart (See page BE–178).**

Go to step 3

3 **Check continuity between terminal GND of cruise control ECU connector and body ground.**

IG OFF



BE3842
BE6593

C Measure resistance between terminal GND of cruise control ECU connector and body ground.

OK **Resistance: Below 1Ω**

OK

NG Repair or replace harness or connector.

Check and repair harness and connector between battery and cruise control ECU.

– MEMO –

Back–up Power Source Circuit

CIRCUIT DESCRIPTION

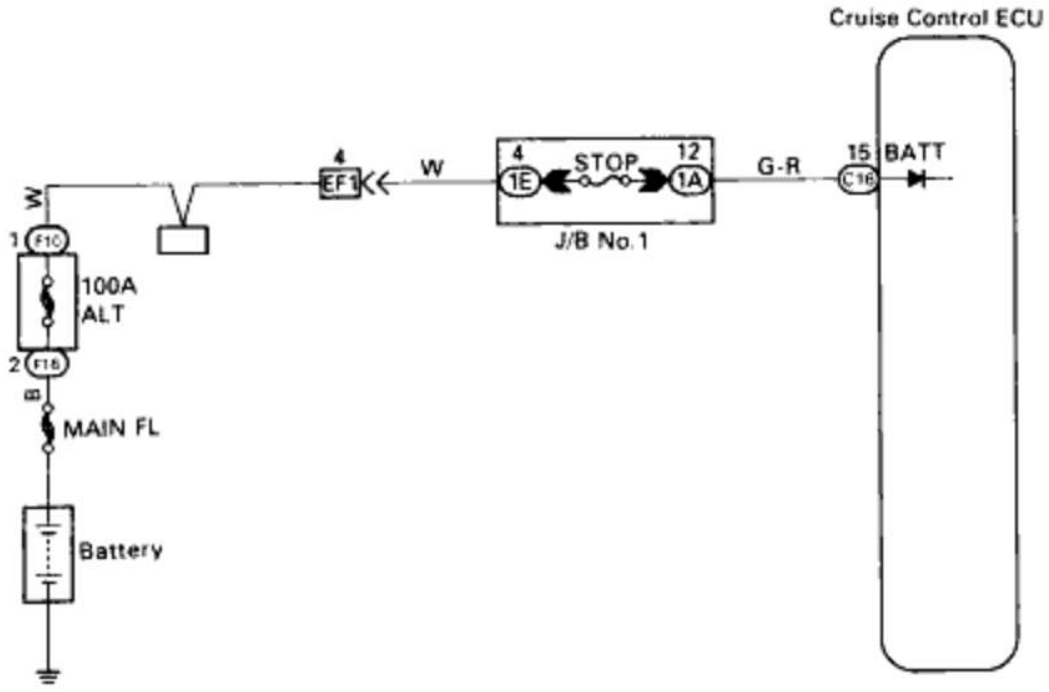
The ECU back–up power source provides power even when the ignition switch is off and is used for diagnostic code memory, etc.

DIAGNOSTIC CHART

1. Check STOP fuse.
   - NG → Check for short in all the harness and components connected to the STOP fuse (See attached wiring diagram).
   - OK ↓
2. Check voltage between terminals BATT of cruise control ECU connector and body ground.
   - OK → Proceed to next circuit inspection shown on matrix chart (See page BE–178).
   - NG ↓

Check and repair harness and connector between battery and cruise control ECU.

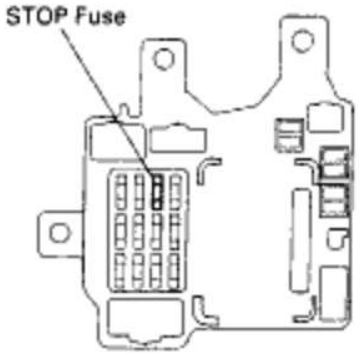
WIRING DIAGRAM



NI1024B

INSPECTION PROCEDURE

1 **Check STOP fuse.**



P Remove STOP fuse from JIB No. 1.

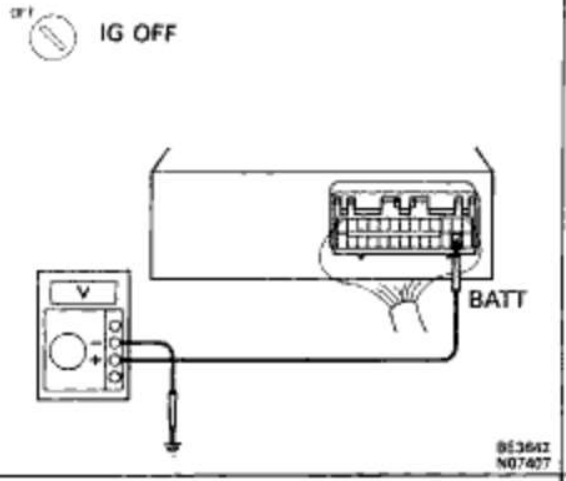
C Check continuity of STOP fuse.

OK **Continuity**

OK

NG → **Check for short in all the harness and components connected to the STOP fuse (See attached wiring diagram).**

2 **Check voltage between terminals BATT of cruise control ECU connector and body ground.**



P Remove cruise control ECU with connectors still connected.

C Measure voltage between terminal BATT of cruise control ECU connector and body ground.

OK **Voltage: 10 – 14 V**

NG

OK → **Proceed to next circuit inspection shown on matrix chart (See page BE–178).**

Check and repair harness and connector between battery and cruise control ECU.

Main Switch Circuit (Cruise Control Switch)

CIRCUIT DESCRIPTION

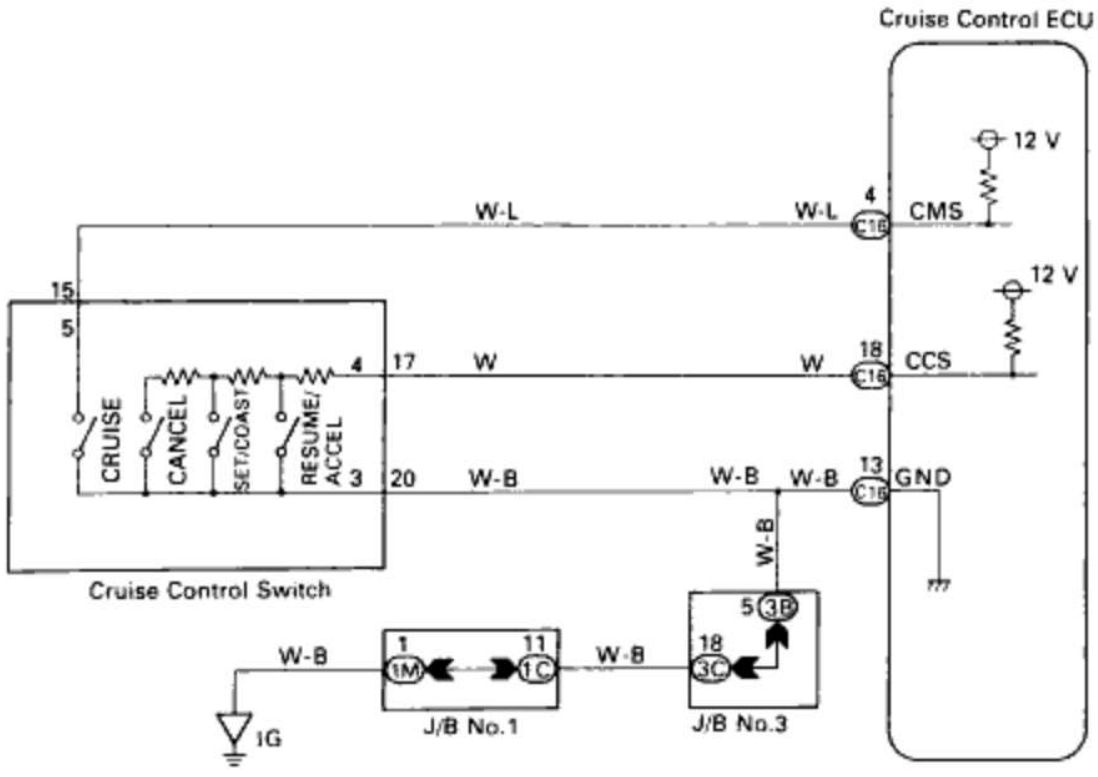
When the cruise control main switch is turned oft, the cruise control does not operate.

DIAGNOSTIC CHART

1. Check voltage between terminals CMS and GND of cruise control ECU connector.
   - OK → Proceed to next circuit inspection shown on matrix chart (See page BE–178).
   - NG ↓
2. Check main switch.
   - NG → Replace cruise control switch.
   - OK ↓
3. Check harness and connector between cruise control ECU and main switch, main switch and body ground.
   - NG → Repair or replace harness or connector.
   - OK ↓

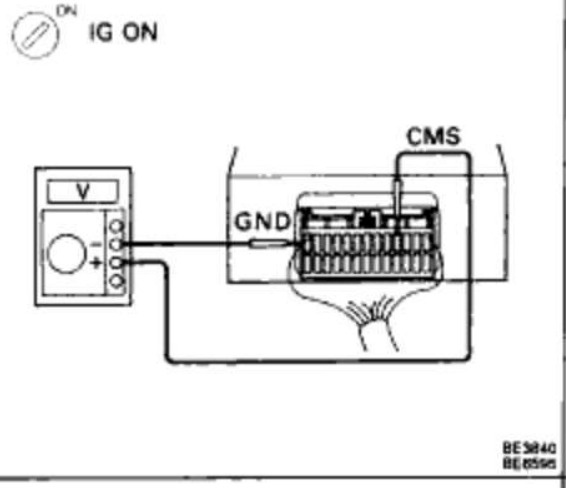
Check and replace cruise control ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 **Check voltage between terminals CMS and GND of cruise control ECU connector.**



P 1. Remove cruise control ECU with connectors still connected.
2. Turn ignition switch ON.

C **Measure voltage between terminals CMS and GND of cruise control ECU connector when main switch is hold on and off.**

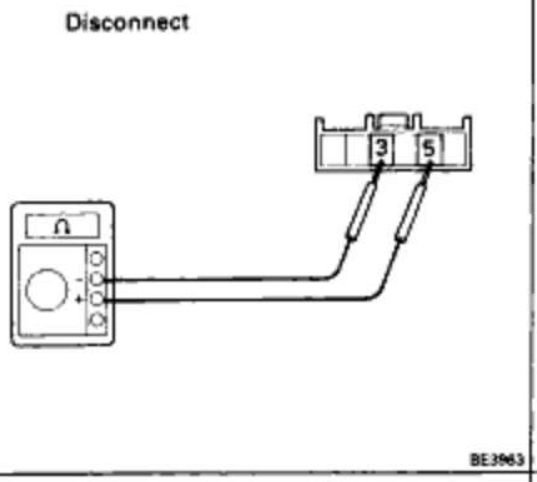
OK

Main switch	Voltage
OFF	10 – 14 V
Hold on	Below 1 V

NG

OK → **Proceed to next circuit inspection shown on matrix chart (See page BE–178).**

2 **Check main switch.**



P 1. Remove steering wheel pad (See page RS–19).
2. Disconnect cruise control switch connector.

C Check continuity between terminals 3 and 5 of cruise control switch connector when main switch is hold on and off.

OK

Terminals / Main switch	3	5
OFF		
Hold on	○—○	

○—○ continuity

OK

NG → **Replace control switch.**

3 **Check harness and connector between cruise control ECU and main switch, main switch and body ground.**

OK

NG → **Repair or replace harness or connector.**

Check and replace cruise control ECU.

TC Circuit

CIRCUIT DESCRIPTION

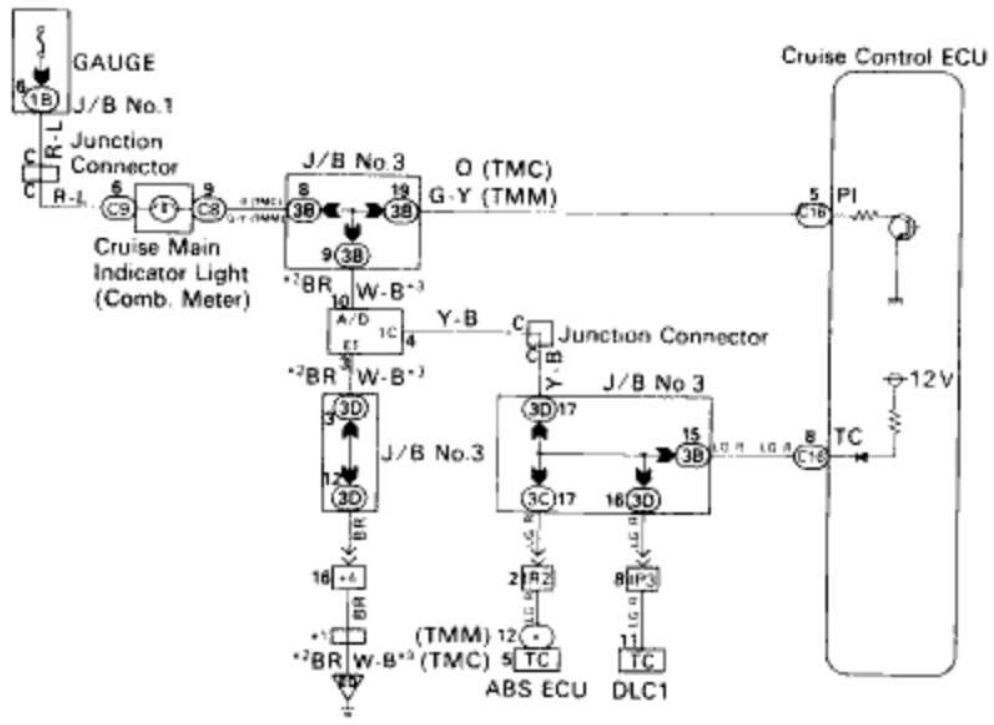
This circuit sends a signal to the ECU that diagnostic code output is required.

DIAGNOSTIC CHART

1. Check voltage between terminals TC and EI of DLC2.
   - OK → Proceed to next circuit inspection shown on matrix chart (See page BE–178).
   - NG ↓
2. Check harness and connector between cruise control ECU and DCL2, DLC2 and body ground.
   - NG → Repair or replace harness or connector.
   - OK ↓

Check and replace cruise control ECU.

WIRING DIAGRAM



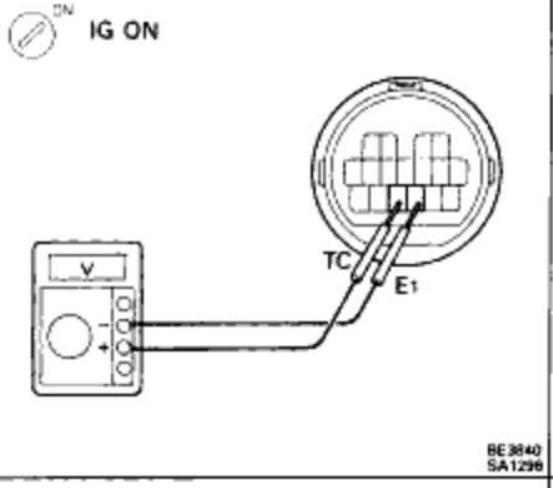
*1: 1MZ-FE
*2: 1MZ-FE and 5S-FE Ex. A/T and California M/T
*3: 5S-FE A/T and California M/T
*4: 1MZ-FE IP1
5S-FE IP3

*: TMC 5 (A13)
TMM 12 (A4)

N10247

INSPECTION PROCEDURE

1 Check voltage between terminals TC and E1 of DLC2.



C 1. Turn ignition switch ON.
2. Measure voltage between terminals TC and El of DLC2.

OK **Voltage: 10 – 14 V**

NG

OK → Proceed to next circuit inspection shown on matrix chart (See page BE–178).

2 Check harness and connector between cruise control ECU and DCL2, DLC2 and body ground. (See page IN–31)

OK

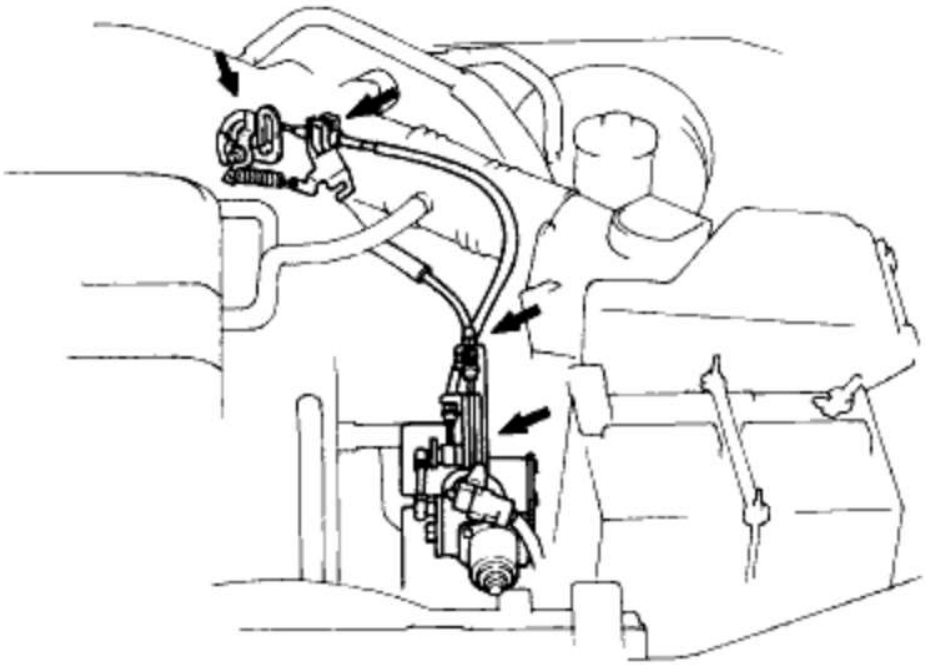
NG → Repair or replace harness or connector.

Check and replace cruise control ECU.

Actuator Control Cable Inspection

C 1. Check that the actuator, control cable and throttle link are properly installed and that the cable and link are connected correctly.
2. Check that the actuator and throttle link are operating smoothly.
3. Check that the cable is not loose or too tight.

Hint 1. If the control cable is very loose, the vehicle's loss of speed going uphill will be large.
2. If the control cable is too tight, the idle rpm will become high.



NG1260